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The Eastern Pacific Marine Mollusks Described by C. B. Adams

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In 1950, William J. Clench and I published a paper on the Western Atlantic Marine Mollusks Described by C. B. Adams.[1] This was the first in a series of papers planned to cover all of the species described by Adams. In this first report we gave a complete account of Adams' life, a bibliography of all of the papers published by him and references to many papers concerning him and his work. Of the eighty-four papers listed in Adams' bibliography, his "Catalogue of Shells Collected at Panama" is by far the largest. One interested in Adams' work in the Eastern Pacific has only to refer to this paper and to one short paper describing a new *Haliotis* which he published in the American Journal of Science for 1848. The "Catalogue of Shells Collected at Panama with Notes on Their Synonymy, Station and Geographical Distribution" was originally published in the Annals of the Lyceum of Natural History New York. A repaged edition which, except for the addition of a "Preface" and "Catalogue of Works Referred To," is an exact reprint of this paper, is far more common than copies of the original. Consequently, reference is made to the paging of both the original and the reprint, the first number quoted being to the reprint and the second number referring to the paging of the original. Of the 159 Eastern Pacific species described by Adams we have been able to locate types of all but eleven. Five

[1] Occasional Papers On Mollusks **1**, no. 15, pp. 233–404, pls. 29–49.

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of the missing types were studied and figured by Dall and Bartsch, the types being lost subsequent to their work. This leaves only six species of which there are no published figures of the original specimens. This is really quite remarkable considering the age of the collection and the fact that it was left virtually unattended from the time of Adams' death in 1853 until it came to the Museum of Comparative Zoölogy in 1942. The three species of *Eulima* were studied and figured by Bartsch in 1917, but the types were not in the collection when it was received by the Museum of Comparative Zoölogy. This is also the case with *Cingula turrita* Adams which was figured by Dall and Bartsch in 1909. Through the kindness of Harald A. Rehder we have been able to borrow the original figure of Dall and Bartsch for use in this report.

As stated in our first report, Adams sold duplicate sets of his material to help finance his field work and publications. He printed extra copies of the index to his Catalogue of Shells Collected at Panama and these he sent to collectors all over the world who checked their wants and returned them to Adams. Consequently, Adams' Panama material may be found in many museums today and since Adams made only the one trip to Panama, any specimens of his new species which he distributed would be paratypes. According to P. P. Carpenter (1863, p. 339), "the second specimens of new species were sent to Mr. Cuming." This material presumably is now in the British Museum.

Many of the species described by Adams are no longer in the genera in which he placed them and some are now considered to be synonyms of species described earlier by Sowerby, d'Orbigny, Hinds and others. In some cases these changes have been noted under the species concerned. However, it is far beyond the scope of this paper to bring all of C. B. Adams' species up to date. In many cases entire families would have to be monographed in order to do this satisfactorily. The purpose here is to present the original descriptions as Adams gave them and to figure for the first time his type specimens.

As Adams did not select holotypes, this term can be applied only to the types of species which he based upon single specimens. For the majority of his species, lectotypes are selected from his cotype series for this paper. When the types of

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Adams' species have been previously illustrated by Pilsbry, Dall, Bartsch or others, the specimens selected by these authors have been retained as the lectotypes. It must also be remembered that in this report only Adams' types are being figured and in many cases the specimens he described are badly worn and in poor condition. The only thing that can be done is to give the best possible figure of the type specimens as retained in his own collection.

The last section of his report Adams entitles "Specierum Novarum Conchyliorum in Sinu Panamensi Repertorum, Synopsis." This is composed of brief Latin diagnoses of the new species which he had described in English in the main body of the report. These Latin diagnoses contribute nothing to the descriptions of the species and therefore are not included here as they would only add needless bulk and expense.

In the introduction to his paper, C. B. Adams discusses the marine zoological province of Panama and points out the analagous species existing on the west coast of Panama and in the West Indies, particularly Jamaica. He also gives a brief account of the expeditions and of the individuals who had worked in the area, as well as a summary of the works published on the Panamic Province up to that time. He concludes his introduction with a brief narrative of his own expedition to Panama.

Many people have referred to the Adams' Panamic collection, chief among them being P. P. Carpenter who has published a detailed account of this collection in the Proceedings of the Zoological Society of London. The Vitrinellidae were reviewed by H. A. Pilsbry and A. A. Olsson, and they figured the Adams' types in this group. Dall and Bartsch referred to the collection for many groups when doing their studies on the west coast marine mollusks.

Acknowledgments

Without the financial aid of friends, the publication of this report would have been impossible. We are greatly indebted to them for their continued interest and support. Harald A. Rehder of the United States National Museum has been most helpful, and H. A. Pilsbry very kindly loaned us the original plates of the species of *Vitrinella* which had been so carefully drawn for Pilsbry and Olsson. These minute shells would be

most difficult to photograph. We are also grateful to R. T. Abbott of the Academy of Natural Sciences, Philadelphia, for checking several types. Particular thanks are extended to Frank White, Staff Photographer at the Biological Laboratories, Harvard University, for his work in photographing the shells.

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This is an exact but repaged reprint of the previous paper with a slight change in the title and the addition of a Title Page, Preface and Catalogue of Works Referred To.

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Original descriptions of the Eastern Pacific Marine Mollusks described by C. B. Adams

As all but one of the species described by C. B. Adams from the Eastern Pacific were published in his "Catalogue of Shells Collected at Panama" no reference is given after the species name except to the paging in the original and the reprint of his catalogue. The first number quoted is to the paging of the reprint and the second refers to the original.

All species are arranged alphabetically in the body of this report regardless of the genera in which they were described. However, as far as possible, species are grouped on the plates according to the various genera in which Adams had placed them. Following the original descriptions there is a list of the species grouped under the genera in which C. B. Adams originally placed them.

aberrans *Adams* **Calyptraea** [219:443] Plate 13, fig. 3

Shell irregularly, somewhat concave externally: papyraceous, pearly, with fine irregular striae of growth: apex very minute, subterminal: the cup in our unique specimen is probably imperfect: what remains consists of a very thin, deeply concave, narrow lamina, transversely attached under the apex of the shell. In texture this shell much resembles a valve of an *Anomia.*

Length .7 inch; breadth .59 inch. Station.—Unknown. Habitat.—Panama; C.B.A.![1] Only 1 specimen was found.

[Is a valve of *Anomia.*]

[1] The "!" was used by Adams after his initials to indicate that he was the collector. This was a common practice at that time and the exclamation point is still used in many museums on their labels to indicate the collector.

abjecta *Adams* **Adeorbis** (?) [183:407] Plate 9, fig. 7

Shell subglobular: sometimes wholly of a yellowish white or wholly of a dingy black, or partly of each color: with several stout spiral raised lines and more or less distinct intermediate striae on the upper part of the whorls: apex subacute: spire small, much eroded in mature shells: whorls three or more, convex, with a distinct suture; last whorl ventricose: aperture effuse, nearly semicircular, the inner lip being straight: umbilicus small.

Mean divergence about 110°; length .1 inch; breadth .09 inch; length of spire .045 inch.

A. scaber Phil., from Panama, is described as having sublamellar striae of growth and an acute periphery of the last whorl. Our shell resembles *Littorina porcata* Phil. of the Gallapago Is.

[184] Station.—Unknown. Habitat.—Panama; C.B.A.! 40 specimens were found in the sand.

aculeus *Adams* **Chemnitzia** [164:388] Plate 8, fig. 11

Shell conic, very slender: white: with, on each whorl, about seventeen obtuse ribs, which terminate abruptly at the periphery of the last whorl: spire with the outlines rectilinear except near the apex: whorls twelve, moderately convex, with a well impressed suture; last whorl with the periphery subangular: aperture subovate: labrum thin: columella scarcely curved: umbilicus wanting.

Mean divergence about 13°; length .18 inch; breadth .04 inch; length of spire .145 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 4 specimens were found in the sand.

[Is *Turbonilla* (*Chemnitzia*) *aculeus* Adams, Dall and Bartsch 1909, Bulletin United States National Museum **68,** p. 38, pl. 2, figs. 2–2a.]

acuminata *Adams* **Chemnitzia** [164:388] Plate 8, fig. 10

Shell fusiform conic: dingy white: with about sixteen or eighteen transverse somewhat oblique ribs, which terminate ab- [165] ruptly on the periphery of the last whorl: spire with the outlines nearly rectilinear: whorls eight, very acutely shouldered above, slightly convex, with a deep suture; last

whorl long: aperture subovate, acute at both extremities: labrum thin: umbilicus wanting.

Mean divergence about 23°; length .11 inch; breadth .043 inch; length of spire .07 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! Only 1 specimen was obtained.

[Is *Turbonilla* (*Turbonilla*) *centaota* Dall and Bartsch, new name for *Chemnitzia acuminata* C. B. Adams, non *C. acuminata* Keyserling 1846, non *Turbonilla acuminata* Goldfuss 1852; Dall and Bartsch 1909, Bulletin United States National Museum **68,** p. 30, pl. 2, figs. 6–6a.]

aequalis *Adams* **Potamomya** [295 : 519] Plate 19, figs. 5–6

Shell subovate, nearly equilateral, slightly inequivalve; with the margin subangulated posteriorly, otherwise well rounded: white beneath a pale brown epidermis: with unequal striae of growth; posteriorly with an umbonial angle not very prominent: beaks small: right umbo very prominent, both somewhat compressed: tooth rather small; teeth of the left valve with a medial ridge.

Length .78 inch; height .66 inch; breadth .42 inch.

Station.—In soft impalpable mud, under a mangrove thicket, near high water mark, and near the outlet of a small stream, with *Arca tuberculosa.* [296] Habitat.—Panama; C.B.A.! 1 specimen was obtained about $2\frac{1}{2}$ miles east of Panama.

affinis *Adams* **Cancellaria** [132 : 356] Plate 8, fig. 3

Shell ovate fusiform: brown, sometimes with one or two [133] spiral bands of white: with, on each whorl, about thirty narrow prominent transverse ridges more or less inequidistant; with numerous raised spiral lines, of which five are seen on the spire, and which on the last whorl are less prominent and wide than the transverse ridges: apex subacute: spire with the outlines nearly rectilinear: whorls six, convex, with the suture subcanaliculate; last whorl rather large: aperture semiobovate, with long sharp ridges within on the right side: labrum sharp, thickened a little behind the edge, scalloped by both the internal and the external sculpture: columella stout, with three plaits, of which the upper one is lamelliform and very prominent, and the lower one is small and very oblique: canal short: with a small umbilical chink bounded by the raised labrum and a spiral bridge.

Mean divergence about 68°; length 1.05 inch; breadth .65 inch; length of spire .45 inch.

This species is not so densely and finely sculptured as *C. elegans* Sowb., and is less ventricose than *C. asperella* Lam.

Station.—Unknown. Habitat.—Panama; C.B.A.! 3 specimens were obtained.

affinis *Adams* **Chemnitzia** [165 : 389] Plate 8, fig. 12

Shell long, conic: pale yellowish brown: with, on each whorl, about twenty-four rather slender ribs, which terminate abruptly at the periphery of the last whorl; very smooth anteriorly: spire with the outlines nearly rectilinear: whorls ten, moderately convex, with a well impressed suture; last whorl angular at the periphery: aperture subovate: labrum thin: columella rather stout: umbilicus wanting.

Mean divergence about 18°; length .21 inch; breadth .055 inch; length of spire .165 inch.

Most easily distinguished from *C. striosa* (p. 169), by the sculpture of the last whorl.

Station.—Unknown. Habitat.—Panama; C.B.A.! 2 specimens were found in the sand.

[Is *Turbonilla* (*Strioturbonilla*) *affinis* C. B. Adams, Dall and Bartsch 1909, Bulletin United States National Museum **68,** p. 56, pl. 4, fig. 11.]

affinis *Adams* **Solecurtus** [300 : 524] Plate 19, figs. 17–18

Shell much elongated, compressed cylindric, well rounded at both extremities; ventral edge straight or slightly arcuated: white beneath a deep yellowish brown epidermis: with unequal striae of growth: beaks not prominent, a little behind the middle of the shell: umbones compressed along the middle: ligament broad, with stout nymphaeal callosities: teeth small, one in the left, and two in the right valve. This is the analogue of *S. Caribaeus.*

Length 2.25 inches; height .8 inch; breadth .55 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 10 specimens were collected.

[Is *Tagelus* (*Tagelus*) *affinis* C. B. Adams, Hertlein and Strong 1950, Zoologica **35,** p. 222.]

alta *Adams* **Fissurella** [236 : 460] Plate 11, figs. 7–8

Shell subconic, high: dingy white, often more or less covered with broad ashy black rays, which may be seen through the shell: with prominent radiating ribs, of which the alternate ones are excessively developed, and intermediate small raised lines; with many concentric ridges, which are less prominent than the larger radiating ribs, and more so than the others: summit nearer to and somewhat inclined towards the anterior extremity: fissure small, ovate-elliptic: margin pectinated by the radiating ribs.

The following are the dimensions of a very large and high shell and of another of average size:

Height .42 inch; length .55 inch; breadth .41 inch.
" .22 " " .42 " " .29 "

Station.—Unknown. Habitat.—Panama; C.B.A.! 26 specimens were obtained.

alternatus *Adams* **Triphoris** [158 : 382] Plate 9, fig. 13

Shell long, conic, sinistrorsal: blackish red except that in the lower whorls a dingy white spiral stripe occupies the lower two-thirds of each whorl: with two stout marginal spiral ridges, and a rather smaller intermediate one, which is wanting on the upper whorls; with about twenty-five transverse moderately developed ridges, which terminate at the periphery of the last whorl, with the intersections strongly nodulous; anteriorly with two additional spiral ridges: apex very acute: spire with the outlines slightly curvilinear: whorls twelve, nearly flat, with an indistinct suture; last whorl short, concave anteriorly: aperture rhombic: canal rather deep, short.

Mean divergence about 30°; length .2 inch; breadth .06 inch; length of spire .155 inch.

Station.—Unknown. [159] Habitat.—Panama; C.B.A.! 3 mature and 2 young shells were found.

[Is *Triphoris alternatus* C. B. Adams, Bartsch 1907, Proceedings United States National Museum **33**, p. 258, pl. 16, fig. 11.]

alta *Adams* **Anatina** [294 : 518] Plate 19, figs. 19–20

Shell ovate, short; anteriorly subangular and flexuous; otherwise with the margins well rounded: pearl-white, with a thin

brownish epidermis: with unequal striae of growth; surface microscopically sagrinate: beaks small, prominent, approximate: umbones moderately convex: spoon-shaped tooth followed by a well rounded deep sinus under the beak.

[295] Length 1.98 inch; height 1.35 inch; breadth .7 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 1 valve only was found.

angiostoma *Adams* **Littorina** (?) [170 : 394] Plate 13, fig. 1

Shell obliquely ellipsoidal; dingy white: surface covered with deep regular spiral striae: apex obtuse: spire rather small with curvilinear outlines: whorls three and one half, very convex, with a distinct suture: aperture subeffuse, nearly semi-elliptical, the inner lip being straight, and well developed: umbilicus conspicuous.

Mean divergence about 85°; length .13 inch; breadth .1 inch; length of spire .055 inch.

The generic character of this species is doubtful. The shell resembles some small species of *Narica*.

Station.—Unknown. Habitat.—Panama; C.B.A.! 3 specimens were found in the sand.

[Is in the genus *Fossarus*.]

angulata *Adams* **Pedipes** [207 : 431] Plate 10, fig. 6

Shell ovate globose: dark brownish red, white in the aperture: solid; with crowded wrinkled unequal raised spiral lines, which are much finer on the upper part of the whorls, and which on the middle of the whorls are larger, and are disposed with one or two smaller lines between the larger lines: apex subacute: spire with the outlines somewhat curvilinear; whorls a little more than four, very angular, concave above the angle, imbricately appressed at the suture; last whorl large and ventricose, subangular below the middle: aperture subelliptical: labrum very sharp, sinuated by the angle on the whorls, a little within much thickened by a white callus, which is interrupted at the angle, and next below it, is developed into a long tooth: columella expanded with a broad flat surface, with two acute transverse plaits, of which the lower one is smaller: labium with a very large lamelliform spiral plait above the columella: umbilicus wanting.

Mean divergence about 90°; length .25 inch; breadth .19 inch; length of spire .1 inch.

Station.—Under stones at high water mark. Habitat.—Panama; C.B.A.!

We collected 90 specimens at the foot of the sea wall at Panama. This and the two species of *Truncatella* were found only in one place less than two yards in diameter.

Mr. Cuming obtained at Iquiqui a very small species of *Pedipes,* which has not been described. We believe that these two are the only known species in this zoological province.

aspersa *Adams* **Calyptraea (Syphopatella)** [219:443] Plate 12, figs. 9–10

Shell conic: thin: dingy or brownish white, irregularly sprinkled with many reddish brown spots: with very short and irregular minute wrinkles: apex acute, central: lamina with the fold appressed only at the inner margin, broadly expanded, making about two thirds of a revolution: margin very thin and acute.

Diameter .55 inch; height .21 inch.

Station.—Under stones at low water mark. Habitat.—Panama; C.B.A.! 3 specimens were found.

assimilatum *Adams* **Cerithium** [150:374] Plate 9, fig. 1

Shell very long, conic: very dark brownish red, with some [151] irregular linear spots of white on the spiral keels: with three excessively prominent compressed acute nearly equal and equidistant spiral keels, with narrow deep interspaces, which are crossed by microscopic raised lines, with a fourth keel on the periphery of the last whorl, and another anteriorly which is more minute: apex acute: spire with the outlines nearly rectilinear: whorls sixteen to eighteen, planulate, with the suture very indistinct: last whorl very short: aperture ovate: labrum deeply scalloped by the spiral ridges: canal large, very short.

Mean divergence about 18°; length .23 inch; breadth .06 inch; length of spire .19 inch.

This species is allied to *C. trilineatum* Phil. and to *C. terebellum* Ad.

Station.—Under stones, sponges, and marine plants, &c., near low water mark. Habitat.—Panama; C.B.A.! Eight specimens were collected.

[Is in the genus *Scila* A. Adams, Bartsch 1913, Proceedings United States National Museum **40**, p. 327.

atrata *Adams* **Littorina** [171 : 395] Plate 9, fig. 5

Shell conic when young, subglobular when mature: black sometimes with a few whitish spots on the last whorl: with spiral keels varying in size and number; usually a strong sharp keel is seen on the periphery of the last whorl and in the suture, and another appears on the upper part of the whorls, with one slightly developed between them; with two or three well developed keels beneath the periphery of the last whorl: apex acute: spire small, eroded in full grown shells, with the outlines moderately curvilinear: whorls four, a little convex, with a well impressed suture; last whorl with an acute periphery in the young, rounded in the mature shell: aperture broadly ovate: labrum well excurved: umbilicus very small. This species is variable in form and in sculpture.

Mean divergence from 65° to 90° in different stages of growth; length .08 inch; breadth .06 inch.

Station.—In or near cavities of rocks between half tide and high water levels. [172] Habitat.—Panama; C.B.A.! 3,300 specimens were collected.

[Is in the genus *Fossarus*.]

atrior *Adams* **Pleurotoma** [138 : 362] Plate 7, fig. 10

Shell subfusiform: jet black, with a paler translucent spiral stripe below the middle of the whorls: with a spiral series of [139] granules next above the suture, and a not very prominent keel above the middle of the whorls; on the last whorl three other keels appear, which are more or less granulated: apex very acute: spire with convex outlines: whorls eleven, angular under the spiral keel, beneath it concave, with an indistinct suture: aperture long, with a rather deep sinus: canal very short, wide. This species has some resemblance to *P. discors*. It must also resemble *P. Melchersi* Menke, Zeitschr. 1851, p. 20.

Mean divergence about 38°; length .8 inch; breadth .28 inch; length of spire .5 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! Only 1 specimen was obtained.

bairdiana *Adams* **Truncatella** [213:437] Plate 12, fig. 7

Shell cylindric: of a rich amber color: with rather small crowded ribs, which are obsolete behind the labrum, less prominent on the convexity of the whorls, well developed anteriorly, in number about twenty-four on the penult whorl: apex acute, truncate with the loss of four whorls: spire with the outlines slightly curvilinear; whorls nearly four after truncation, convex, with a well impressed suture: aperture ovate, slightly effuse above: labrum advanced along the middle, reflected, double: labium with a thick deposit, continuous with the labrum.

Mean divergence about 22°, being considerably less in the lower whorls and more above; length after truncation, .21 inch; breadth .075 inch; length of spire .15 inch.

This species must resemble *T. scalariformis* Reeve from the island of Annaa; but that shell is figured with five whorls after truncation, in color it is described as "luteola," and the labrum is said to be sharp and simple.

Station.—Under a heap of stones at the high water mark of spring tides. Habitat.—Panama; C.B.A.! 400 specimens were collected at the bottom of the sea wall of Panama.

One specimen has come to maturity without the loss of the apex, which, however, is white and cretaceous from partial decay.

We dedicate this species to Professor S. F. Baird, whose name is so well known to Herpetologists.

[Is *Truncatella bairdiana* C. B. Adams, Clench and Turner 1948, Occasional Papers On Mollusks **1**, p. 195.]

bellus *Adams* **Fusus** [129:353] Plate 8, fig. 2

Shell rather elongate and regularly fusiform; white, with some reddish brown spots in spiral series, mostly in three series, one above and two next below the middle of the whorls: with, on each whorl, about ten rather narrow prominent ribs, some of which are varicoid, with spiral raised lines, with the

intersections nodulous, and spiral striae: apex acute: spire conic: whorls seven, very convex, with a moderately impressed suture: aperture long ovate; canal wide, moderately lengthened.

Mean divergence about 50°; length .44 inch; breadth .21 inch; length of spire .22 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! One specimen only was obtained.

bicolor *Adams* **Amphidesma** [288 : 512] Plate 18, figs. 7–8

Shell elliptical, scarcely flexuous, inequilateral, the posterior side being larger; with the posterior dorsal margin a little con- [289] cave; otherwise with all the margins well rounded: purple near the beaks, otherwise dingy white: interior similarly colored, but with the purple region larger: smooth near the beaks, otherwise with fine raised concentric lines, and crowded radiating striae, which are mostly microscopic, and which posteriorly are divergent and wholly microscopic; beaks small, prominent: umbones convex.

Length .85 inch; height .74 inch; breadth .42 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! Only 1 valve was found.

bimarginatum *Adams* **Cerithium** [151 : 375] Plate 9, fig. 2

Shell long, conic: wax color, dark brown on the upper whorls: with a spiral ridge at each margin of the whorls of the spire and an intermediate raised line; on each whorl with about eighteen transverse small ridges with intersections strongly nodulous; with a simple spiral ridge at the periphery of the last whorl; anteriorly without sculpture: apex very acute: spire with the outlines rectilinear: whorls thirteen, concave, with a well impressed suture; last whorl very short, concave anteriorly, with the periphery angular: aperture subquadrate: columella with a very prominent spiral fold: canal rather short, recurved.

Mean divergence about 20°; length .175 inch; breadth .055 inch; length of spire .14 inch.

Station.—Unknown. [152] Habitat.—Panama; C.B.A.! 2 specimens were found.

[Is *Eumeta bimarginata* C. B. Adams, Bartsch 1911, Proceedings United States National Museum **39**, p. 566, text fig. 2.]

buddiana *Adams* **Chama** [253 : 477] Plate 20, figs. 7–8

Shell orbicular or subtriangular: exterior surface and inner margins purplish red, with the spines pure white: surface uneven, with interrupted radiating striae; upper valve ornamented with a few radiating series of short thick triangular vaulted spines: lower valve attached by about two-thirds to three-quarters of its surface, the rest being like the upper valve, but with the dentiform spines smaller: within both valves are deeply and finely crenulated at the junction of the white surface and red margin: beak submarginal. Easily distinguished from *C. Pacifica* and *C. Broderipii* by the small thick dentiform triangular white spines.

Diameter about 3 inches.

Station.—On ledges of rocks, a little above low water mark. The lower valve is so firmly attached as to render it difficult to obtain specimens entire without the use of mineralogical tools. Habitat.—Guaymas; Lt. Green! Mus. Essex Inst. Panama; C.B.A.! 6 specimens were obtained.

Named in honor of Dr. B. W. Budd of New York City.

canescens *Adams* **Nassa** [59 : 283] Plate 5, fig. 8

Shell rather long, ovate conic: pale brown on all the raised portions of the surface, with the interspaces pale gray: with ten or eleven very prominent narrow ribs, and many raised spiral lines, which are not interrupted by the ribs, and of which two on the middle of the whorls and some anteriorly are larger: spire with the outlines nearly rectilinear: apex acute: whorls eight or nine, subangular in the middle, with a well impressed suture; last whorl moderately ventricose, anteriorly spirally subcanaliculate: aperture subelliptical: labrum subacute, much thickened by a varix a little behind the edge, finely grooved within: labium finely wrinkled, a little dilated but not appressed: notch large and deep.

Mean divergence about 50°; length 1.05 inch; breadth .6 inch; length of spire .6 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 1 specimen was obtained.

[Is *Nassarius pagodus* Reeve, Hertlein and Strong 1955, Bulletin American Museum Natural History **107**, p. 245.]

cerithicola *Adams* **Crepidula** [225:449] Plate 11, figs. 14–15

Shell ovate, convex: posteriorly whitish, sometimes with a broad ray of dark brownish red on each side of the umbo; anteriorly subtransparent, pale brownish red, with narrow dark rays of the same color; sometimes all the rays are confluent, and more rarely the entire shell is of a dark brownish red; with the septum white: smooth: apex acute, terminal and marginal, a little dextrorsal: septum slightly angulated along [226] the middle, with a small sinus at the left, a broad one at the middle of the edge, and none at the right side.

Length .23 inch: breadth .14 inch: convexity .07 inch.

Station.—On *Cerithium irroratum* [Gould], q.v. Habitat.—Taboga; C.B.A.!

This species was not observed until after the shells arrived here. When cleaning a quantity of *C. irroratum,* 45 specimens were obtained.

[Is *Crepidula onyx* Sowerby, Dall 1909, Proceedings United States National Museum **37,** p. 283.]

clandestina *Adams* **Rissoa** [177:401] Plate 12, fig. 6

Shell long, ovate conic: dingy white: with, on each whorl, about eighteen or nineteen stout prominent compressed ribs, which are continued to the anterior extremity: apex acute: spire with the outlines moderately curvilinear: whorls seven, moderately convex: with a well impressed suture: last whorl rather large: aperture large, oblique, moderately effuse at both extremities: labrum much advanced along the middle, much thickened with a broad varix; umbilicus wanting.

Mean divergence about 30°; length .115 inch; breadth .05 inch; length of spire .07 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 2 specimens were found.

[Is *Rissoina clandestina* C. B. Adams, Bartsch 1915, Proceedings United States National Museum **49,** p. 55, pl. 32, fig. 5.]

clathratula *Adams* **Chemnitzia** [165:389] Plate 11, fig. 5

Shell ovate conic, much elongate: white: with, on each whorl, about thirty minute ribs, which gradually become obsolete on the periphery of the last whorl, and which are decussated by

spiral raised lines, of which five or six appear on the spire [166] and of which the remainder cover the anterior part of the last whorl: apex very minute: spire with the outlines nearly rectilinear: whorls eight, more or less angular in the upper part, with a well impressed suture; last whorl rather long, with a well rounded periphery: aperture subovate: labrum thin: columella rather stout: umbilicus wanting.

Mean divergence about 16°; length .13 inch; breadth .04 inch; length of spire .1 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 10 specimens, in various stages of growth, were collected from the sand.

[Is *Odostomia* (*Chrysallida*) *clathratula* C. B. Adams, Dall and Bartsch 1909, Bulletin United States National Museum **68**, p. 145, pl. 14, figs. 7–7a.]

cognata *Adams* **Petricola** [286 : 510] Plate 19, figs. 3–4

Shell pholas-shaped, inequilateral: dingy white: in the upper posterior area with very fine crowded radiating equal [287] striae; in the lower posterior area with unequal fine raised radiating lines; in the anterior half with radiating ribs, which are ornamented with small thick vaulted scales; beaks small, prominent: umbones prominent, somewhat flattened: lunule defined by the anterior ribs, a little depressed: ventral margin scalloped anteriorly. It is allied to *P. pholadiformis* Lam.

Length .92 inch; height .42 inch; breadth .44 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 1 specimen was obtained.

[Is *Petricola cognata* C. B. Adams, Pilsbry and Lowe 1932, Proceedings Academy Natural Sciences Philadelphia **84**, p. 99, pl. 13, figs. 10–11.]

cognata *Adams* **Tellina** [279 : 503] Plate 18, figs. 9–10

Shell subelliptical, solid, convex, subequilateral; ventral margin slightly excurved; anterior margin broadly rounded; anterior dorsal margin nearly straight, sloping; posterior dorsal margin slightly concave, sloping equally with the posterior dorsal; posterior extremity somewhat obliquely and very broadly truncated; flexure slight; white, with a pale reddish or brownish tinge; with excessively minute unequal radiating [280] striae; with concentric crowded somewhat oblique minute striae, which terminate much before reaching the umbonial angle, covering less than half of the posterior side, and

which are also wanting near the anterior dorsal margin: beaks not very prominent: ligament short, conspicuous: lateral teeth obsolete. It is closely allied to *T. similis,* which is said to be a Caribbean species.

Length 1.75 inch; height 1.23 inch; breadth .5 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! A single valve was found.

[Is *Tellina* (*Scissula*) *cognata* C. B. Adams, Hertlein and Strong 1949, Zoologica **34**, p. 84.]

collaria *Adams* **Nassa** [59:283] Plate 5, fig. 4

Nassa collaria Gould MSS.

Shell ovate conic: dingy white, with a dark reddish brown band on each side of the whorl: with, on each whorl, about ten or twelve ribs, which are smaller and more approxi- [60] mate but not obsolete on the last part of the last whorl; with many spiral raised lines. with the intersections subnodulous: spire with the outlines nearly rectilinear: apex acute: whorls seven, slightly convex, with a distinct suture; last whorl with a minute spiral canal anteriorly: aperture subelliptical: labrum subacute, thickened with a stout varix, within crenulated coarsely and unequally: labium a little thickened, not appressed: with a deep notch.

Mean divergence about 50°; length .38 inch: breadth .21 inch; length of spire .23 inch.

Var. *a;* smaller (.23 inch long); with the lower fascia much broader, and darker anteriorly.

Station.—Unknown. Habitat.—Panama; (var. *a*); E. Jewett! Gould Mss. Panama; C.B.A.! We obtained 4 specimens of the type, and one of the variety.

[Is in the genus *Nassarius.*]

communis *Adams* **Chemnitzia** [166:390] Plate 10, fig. 5

Shell long, fusiform conic: dingy white: with, on the penult whorl, about twenty-two transverse ridges, and on the last whorl a greater number, which are less prominent, and which become obsolete anteriorly: with spiral ridges, of which four or five are seen on the spire, and which on the last two whorls are as prominent as the transverse ridges, but above are less

developed: apex with the axis oblique: spire with the outlines curvilinear: whorls eight, moderately convex, with a well impressed suture: last whorl rather long: aperture ovate, acute above, very broadly effuse below: labrum rather thin, but not sharp: columellar lip well thickened, below reflected over a minute umbilical indentation: columella with one small plait. A large specimen has the following dimensions:

Mean divergence about 23°; length .165 inch; breadth .05 inch; length of spire .11 inch.

Station.—Under stones near low water mark. Habitat.—Panama and Taboga; C.B.A.! 90 specimens were collected.

[Is *Odostomia* (*Chrysallida*) *communis* C. B. Adams, Dall and Bartsch 1909, Bulletin United States National Museum **68,** p. 141, pl. 14, figs. 10–10a.]

[When studying the type series of *Chemnitzia communis* Adams, Dall and Bartsch found that it was a mixed lot and from it they separated two additional species which they described as *Odostomia* (*Chrysallida*) *tyleri* (ibid., p. 157, pl. 16, fig. 5; Holotype, Museum of Comparative Zoölogy no. 186556) and *Turbonilla* (*Dunkeria*) *andrewsi* (ibid., p. 124, pl. 12, figs. 7, 7a; Paratypes, Museum of Comparative Zoölogy no. 155936 and 155937).]

concinna *Adams* **Auricula** [208 : 432] Plate 13, fig. 4

Shell ellipsoidal: blackish brown, paler on the convexity of the last whorl, with a yellowish white spiral band on the last whorl issuing from beneath the suture; with the plaits and callus in the aperture white: smooth and shining: apex acute: spire with the outlines very curvilinear: whorls five, convex, imbricately appressed, with the suture moderately impressed; last whorl long: aperture narrow and very acute above, much contracted by the plaits: labrum sharp, in the lower part much thickened within by a broad thick deposit: plaits three, of which the lower one is very oblique, and the upper one is very large, [209] concave on the lower side, and on the upper side extended to the summit of the aperture with a transversely ridged surface.

Mean divergence about 80°; length .32 inch; breadth .2 inch; length of spire .09 inch.

Station.—Our specimens were found mostly on the short suckers, which were growing up thickly beneath the mangroves, near high water mark. Habitat.—Panama; C.B.A.! We collected 74 specimens two and one-half miles east of Panama.

concinna *Adams* **Pleurotoma** [140 : 364] Plate 8, fig. 8

Shell fusiform: white, tinged more or less with reddish brown: with numerous crowded small ribs, which become obsolete near the labrum, and crowded spiral striae, which are finer on the spire: apex acute: spire with moderately convex outlines: whorls eight, angular along the middle, with a moderately impressed suture: aperture very long and narrow: labrum very much thickened a little behind the edge, with the sinus deep and very near the suture: canal scarcely distinct from the aperture. It resembles *P. triticea* Kiener, and may be a *Mangelia.*

Mean divergence about 43°; length .42 inch; breadth .17 inch; length of spire .18 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 1 specimen was obtained.

concinna *Adams* **Tellina** [280 : 504] Plate 18, figs. 16–17

Shell subelliptical, rather thin, convex, with the anterior side a little larger; ventral margin moderately excurved; anterior margin broadly rounded; anterior dorsal margin a little excurved, moderately sloping; posterior dorsal margin nearly straight, sloping equally with the anterior dorsal margin; posterior extremity somewhat obliquely and very broadly truncated; flexures slight: shining, snow-white, with a slight tinge of pink in the middle; with very unequal, and, for the most [281] part, very fine concentric striae, which are much coarser posteriorly; with excessively minute unequal radiating striae: beaks not very prominent: ligament short, conspicuous: lateral teeth obsolete.

Length 1.6 inch; height 1.02 inch; breadth .47 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 3 fine specimens were obtained.

concinna *Adams* **Vitrinella** [184 : 408] Plate 15, fig. 4, a–b

Shell discoidal: white: with five prominent acute spiral keels, of which one is next below the suture: the second is about equidistant between the suture and the periphery of the last whorl; the third is a little below the periphery; the fourth is on the middle of the lower side of the last whorl; and the fifth

is within the umbilicus; with a more or less distinct ridge between the first two keels; with curved transverse elevated lines, which become obsolete on the last half of the last whorl: apex minute, papillary: spire nearly flat: whorls three and one-half: planulate above, with the suture subcanaliculate; last whorl declining near the aperture below the plane of the spire: aperture orbicular, very oblique: lip moderately thickened, slightly angulated by the keels: umbilicus broad and deep.

Divergence about 175°; greatest breadth .062 inch; least breadth .05 inch; height .03 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! Only 1 specimen was found.

[Is *Solariorbis concinnus* C. B. Adams; Pilsbry and Olsson 1952, Proceedings Academy Natural Sciences Philadelphia **104**, p. 57.]

conica *Adams* **Pyramidella** [200:424] Plate 10, fig. 12

Shell long, regularly conic: white on the upper whorls, dark brown on the others, with a pale spiral line just above the suture: surface smooth and shining: apex very acute: spire with the outlines rectilinear: whorls fourteen, flat, with the suture in a narrow deep groove: last whorl sharply angulated at the periphery: aperture oblique: labrum thin: columella with three plaits, of which the one is lamelliform, and the other two are very small.

Mean divergence about 23°; length .52 inch; breadth .175 inch; length of spire .38 inch.

This species is remarkable for the exact conical form of the spire.

Station.—Unknown. Habitat.—Panama; C.B.A.! 1 specimen was found.

[Is *Pyramidella* (*Longchaeus*) *conica* C. B. Adams; Dall and Bartsch 1909, Bulletin United States National Museum **68**, p. 23, pl. 1, fig. 9.]

consanguinea *Adams* **Cytherea** [272:496] Types lost

Shell obovate, subcordate, with the ventral margin well excurved: very pale straw color, with numerous yellowish brown linear rays, which are more or less interrupted, and which usually terminate before reaching the margin: smooth and shining, with the lines of growth very minute: beaks pro- [273]

minent, approximate: posterior area long and narrow, well defined: lunule cordiform, defined by a well impressed line; both areas striate: margin of the interior not crenulate: anterior tooth much larger than the others. This shell belongs to a group of very closely allied species, among which are *C. inflata, C. albida, C. convexa,* &c.

Length 1.25 inches; height 1 inch; breadth .68 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! We found 8 specimens on the reef.

[Is *Pitar* (*Pitar*) *consanguineus* C. B. Adams; Hertlein and Strong 1955, Bulletin American Museum Natural History **107,** p. 189.

conspicua *Adams* **Columbella** [83:307] Plate 7, fig. 3

Shell ovate-conic: with a broad white spiral band on the convexity of the whorls, on each side of which is a broad band of brownish orange; anteriorly white with irregular brown spots; with deep brown spots near the summits of the alternate ridges; with, on each whorl, nine very prominent obtuse transverse ridges, which are obsolete at the upper part of the whorls; with coarse spiral striae, which traverse the ridges except at the summit of the middle and most prominent part: apex suba-
[84] cute; spire with the outlines nearly rectilinear; whorls eight, convex, with a moderately impressed suture; last whorl subangular; aperture a little wider above; labrum moderately thickened, with a few wrinkles on the inside: notch wide and deep.

Mean divergence about 35°; length .21 inch; breadth .1 inch; length of spire .12 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! Only one specimen of this elegant shell was found.

cornuta *Adams* **Pandora** [295:519] Plate 17, figs. 15–16

Shell elongate, ovate, very inequilateral, the posterior part being much longer and higher; dorsal margin nearly straight, posteriorly sharply rostriform; posterior margin much excavated next beneath the rostriform projection; ventral margin well rounded: pearl-white: with some unequal striae of growth; right valve with a prominent angle extending from the beak to the middle of the sinus of the posterior margin; left valve

with a corresponding depressed angle; beaks indistinct: umbones slightly and almost equally convex.

Length .7 inch; height .42 inch; breadth .11 inch.

We adopt the appropriate name suggested by Dr. Gould.

Station.—Unknown. Habitat.—Panama; C.B.A.! Only 1 specimen was found.

coronulatus *Adams* **Trochus** [191 : 415] Plate 13, fig. 8

Shell conic, moderately elevated, thick: dingy white, with broad reddish brown oblique flammules, with the nodules pale red: with minutely undulated spiral raised lines: anteriorly with four or five larger raised lines: with, on the periphery of the last whorl, two spiral nodulous keels, of which one appears on the spire: with a series of larger nodules on the shouldered margin of the whorls: spire with the outlines moderately curvilinear: apex subacute: whorls six, planulate above the keels, with the suture broadly and deeply canaliculate: aperture nearly orbicular: labrum much advanced in the upper part: columella bidentate: umbilicus one third as wide as the aperture, reaching to the apex.

Mean divergence about 90°; length .55 inch; greatest breadth .72 inch; least breadth .6 inch.

Station.—Unknown. Habitat.—Taboga; C.B.A.! We found 2 specimens.

[Is *Tegula rubroflammulata* Koch 1843, Pilsbry and Lowe 1932, Proceedings Academy Natural Sciences Philadelphia **84**, p. 86.]

corpulenta *Adams* **Nassa** [60 : 284] Plate 5, fig. 3

Shell ovate conic, very robust: spirally banded with white and brown, sometimes mostly white, sometimes mostly brown, with a broad white stripe below the middle of the last whorl, white in and about the aperture: with, on each whorl, about eleven narrow ribs, which are traversed by spiral raised lines: spire with the outlines rectilinear or slightly concave; apex acute: whorls nine, moderately convex, with a well impressed suture; last whorl very large and ventricose, spirally canaliculate anteriorly: aperture subelliptical, contracted: labrum subacute thickened with a very stout varix, within coarsely sulcate: labium wrinkled, a little thickened but not appressed:

notch large and deep. *N. festiva* Powis must resemble this shell, and possibly may be identical with it.

Mean divergence about 46°; length .88 inch; breadth .63 inch; length of spire .46 inch.

[61] Station.—Unknown. Habitat.—Panama; E. Jewett! Gould Mss. Taboga and Panama; C.B.A.! 17 specimens were obtained.

[Is *Nassarius corpulentus* C. B. Adams; Desmond 1952, Pacific Science **6**, p. 314.]

diminuta *Adams* **Columbella** [85 : 309] Plate 7, fig. 2

Shell subfusiform: pale yellowish brown, black or brownish black anteriorly: ribbed, with the interstices covered with spiral striae, which are coarser anteriorly where the ribs are obsolete; apex acute: spire conic: whorls seven, scarcely convex: with the suture lightly impressed: aperture rather narrow: labrum variciform, broadly thickened, sinuate posteriorly, crenulated within: columellar lip with the granules obsolete.

Mean divergence about 45°; length .155 inch; breadth .07 inch; length of spire .08 inch.

This species resembles a dwarfed *C. nigrescens.*

Station.—Under stones near low water mark we found this shell. Habitat.—Panama; C.B.A.! 19 specimens were obtained.

diminutum *Adams* **Coecum** [161 : 385] Plate 17, fig. 7

Shell well arcuated, slender, with the diameter uniform, except near the summit: white: with about 17 stout rings, which are rather distant and are but slightly flattened at the summits, followed by about 10 rings which are small and less prominent: apex lateral, not prominent.

Length .06 inch: breadth .018 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 1 specimen was found.

dubiosa *Adams* **Littorina** [174 : 398] Plate 13, fig. 13

If our shell is distinct from Philippi's species, it may take the name of *L. dubiosa,* with the following description.

Shell conoid: blue, whitish next below the suture and anteriorly, with oblique brown bars on the whitish parts: very dark brown inside, spotted with brown and white in the labrum:

with several impressed spiral lines, which are more or less indistinct on the spire and on the middle of the last whorl, and of which one next above the angle of the last whorl is deeper: apex subacute: spire with the outlines moderately curvilinear: [175] whorls nearly six, a little convex, with a distinct suture; last whorl angular: aperture ovate, acute above, slightly effuse: columellar lip slightly flattened and dilated.

Mean divergence about 55°; length .25 inch; breadth .17 inch.

Some of the more strongly striated and colored individuals resemble the young of *L. aspera,* but the spire is always less acute.

Station.—In the cavities of a rough ledge of rocks, at and above high water mark. Habitat.—Panama; E. B. Philippi! Philippi. Taboga; C.B.A.! 600 specimens were taken at Taboga.

[This species was listed under *Littorina parvula* Phil.? It is a subspecies of *Littorina aspera* Philippi.]

dubiosa *Adams* **Truncatella** (??) [213 : 437] Plate 12, fig. 8

Shell ovate conic: translucent, deep yellowish brown: thin, smooth, and shining: apex subacute: spire with the outlines moderately curvilinear: whorls six, convex, with a well [214] impressed suture; last whorl rather short and subangular, but ventricose: aperture broadly ovate: labrum thin: labium a little reflected below, above interrupted by the penult whorl.

Mean divergence about 45°; length .083 inch; breadth .055 inch; length of spire .045 inch.

Operculum corneous.

Station.—With *Truncatella Bairdiana.* Habitat.—Panama; C.B.A.! 550 specimens were collected.

This species cannot properly be referred to *Truncatella.* The apex is not truncated; the operculum is horny; and the general form and texture indicate a different genus. In form it approximates to *T. fusca, T. littorea, &c.,* which are not Truncatellae, but which probably belong to *Bembicium.* From the habits of our species, it may be inferred to be an air-breathing mollusc, while the characters of the shell are very different from those of *Bembicium.* The shell appears too deficient in characters suitable for generic distinction, and we refrain from proposing a new genus until the soft parts shall be known.

[Is in the genus *Aroapyrgus* H. B. Baker; Clench and Turner 1948, Occasional Papers On Mollusks **1**, no. 13, p. 198.]

eburneum *Adams* **Coecum** [161 : 385] Plate 17, fig. 3

Shell rather slender, well arcuated, scarcely widening towards the aperture, slightly contracted at the summit: ivory white: with about 33 broad stout approximate rings with flat summits; with the first 4 to 10 rings and sometimes the last 2 or 3, very prominent and less approximate, and the rest slightly prominent and closely approximate: apex prominent.

Length .09 inch; breadth .025 inch.

A var. (?) has only 24 rings, of which the last 3 or 4 are prominent, indicating maturity.

Station.—Unknown. Habitat.—Panama; C.B.A.! 22 specimens were found in the sand.

excavata *Adams* **Littorina** (?) [172 : 396] Plate 13, fig. 2

Shell obliquely ellipsoidal: very dark brown at the apex, in the umbilical region and in the fauces, otherwise pale horn color: with several spiral raised lines, and intermediate very minute spiral striae; apex subacute: spire small, with the outlines very curvilinear: whorls nearly four, compressed, with a distinct suture; last whorl ventricose: aperture subovate: labrum very sharp, but thickened much a little behind the edge: columella dilated and thickened: region around the umbilicus much excavated: umbilicus small.

Mean divergence about 90°; length .17 inch; breadth .13 inch; length of spire .04 inch.

The generic character of this species is doubtful. It resembles a small *Narica.*

Station.—Unknown. Habitat.—Panama; C.B.A.! 1 specimen was found in the sand.

[Is in the genus *Fossarus.*]

exigua *Adams* **Pleurotoma** [142 : 366] Plate 8, fig. 6

Shell slender: pale cream color, with very fine brown spiral lines, of which the two or three upper ones are single, and the rest are in pairs: with distant obtuse transverse ridges, about six or seven on each whorl, obsolete on the anterior half of the

last whorl: apex acute: spire with the outlines moderately convex: whorls six, convex, with a distinct suture: aperture narrow: labrum thickened by the last ridge a little behind the edge, with a deep sinus near the suture: canal very short.

Mean divergence about 34°; length .175 inch; breadth .06 inch; length of spire .1 inch.

[143] Station.—Unknown. Habitat.—Panama; C.B.A.! 1 specimen of this elegant little shell was obtained in the calcareous sand on the shore.

exigua *Adams* **Vitrinella** [184 : 408] Plate 15, fig. 2, a–b

Shell subdiscoidal: white: on the periphery of the last whorl [185] is a keel, which is visible on a small part of the penult whorl, and then runs into the suture; with another somewhat less prominent keel below the periphery, and a third, which is nearly obsolete, around the umbilicus; with not very distinct transverse raised lines, which are most developed between the two lower keels: apex obtuse: spire convex, slightly elevated: whorls nearly three, with a well impressed suture, very convex above so as to simulate a moderately developed carina; last whorl concave on each side of the periphery: aperture orbicular: labrum slightly thickened, modified by the ends of the spiral keels; umbilicus very narrow, deep.

Mean divergence about 170°; greatest breadth .045 inch; least breadth .036 inch; height .021 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 7 specimens were found in the calcareous sand.

[Is *Cyclostremiscus trigonatus* Carpenter; Pilsbry and Olsson 1945, Proceedings Academy Natural Sciences Philadelphia **97**, p. 268, pl. 27, fig. 2, a–b; non *C. exigua* Philippi 1849.]

famelicum *Adams* **Cerithium** [152 : 376] Plate 9, fig. 3

Shell long, ovate conic: dingy white, more or less profusely mottled with irregular brown spots, which are divided by fine white spiral lines; or nearly covered with fine alternating white and brown lines: with a narrow spiral ridge on the middle of the whorls, crossing transverse obtuse ridges, with very prominent acute intersections; with the upper margin of the whorls more or less granulous; anteriorly with two more granulous spiral ridges; surface covered with fine spiral striae: apex

acute: spire with the outlines slightly curvilinear: whorls twelve, moderately convex, with the suture lightly impressed; last whorl short, gibbous on the left, with an anterior concave area: aperture large, obliquely elliptical: labrum advanced in the lower half: labium with a moderately thick deposit and a stout transverse plait above: canal short, oblique.

Mean divergence about 33°; length 1.13 inch; breadth .5 inch; length of spire .75 inch.

In color and sculpture only, this shell has some resemblance to *C. maculosum* Kr. (*C. adustum* of Kr.'s plate).

Station.—Unknown. Habitat.—Taboga; C.B.A.! 17 specimens were collected.

firmata *Adams* **Rissoa** [177 : 401] Plate 10, fig. 10

Shell long, ovate conic: dingy white: with, on each whorl, about twelve very stout, prominent, rather acute ribs, which are continued to the anterior extremity: apex acute: spire with the outlines curvilinear: whorls seven, convex, with a well impressed suture: last whorl rather large: aperture oblique, subovate, effuse at both extremities: labrum well advanced along the middle,thickened with a broad stout rib: umbilicus wanting.

Mean divergence about 30°; length .185 inch; breadth .075 inch; length of spire .13 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 1 specimen was found in the sand.

[Is *Rissoina firmata* C. B. Adams; Bartsch 1915, Proceedings United States National Museum **49**, p. 38, pl. 32, figs. 4, 6.]

firmatum *Adams* **Coecum** [161 : 385] Plate 17, fig. 6

Shell rather stout, well arcuated, widening towards the aperture, moderately contracted at the summit: ivory white: with about 25 very stout broad prominent not closely approximate rings, with flat summits: apex not very prominent.

Length .09 inch; breadth .03 inch.

[162] A variety (?) is more slender, and has the ribs less prominent.

Station.—Unknown. Habitat.—Panama; C.B.A.! 85 specimens were collected from the sand.

fortis *Adams* **Rissoa** [178 : 402] Plate 10, fig. 11

Shell long, ovate conic: white: with, on each whorl, about twenty-two to twenty-four stout prominent approximate ribs, which converge at the anterior extremity, where they become very small: apex acute: spire with the outlines curvilinear: whorls ten, slightly shouldered, moderately convex, with a well impressed suture; last whorl ventricose: aperture oblique, ovate, retreating above, deeply effuse: labrum much advanced in the lower half, very thick: labium thick: umbilicus wanting.

Mean divergence about 33°; length .29 inch; breadth .12 inch; length of spire .185 inch.

This species resembles *R. ambigua* Gould, and is very different from *Rissoina Inca* Orb.

Station.—Under stones near low water mark. Habitat.—Taboga; C.B.A.! 31 specimens were collected.

[Is *Rissoina fortis* C. B. Adams; Bartsch 1915, Proceedings United States National Museum **49,** p. 40, pl. 29, figs. 5, 6.]

foveolata *Adams* **Purpura** [76 : 300] Plate 6, fig. 9

Shell obliquely rhombic: white: with very prominent compressed transverse ridges, about nine on each whorl, and four spiral keels which are very prominent and much compressed, of [77] which the upper one is seen on the middle of the whorls of the spire, and of which the anterior one is much less developed; with the intersections prominent; with rather fine spiral striae: apex acute: whorls six, concave on both sides of the keel, with the suture indistinct: aperture long ovate, produced into a short canal: labrum rather thin, scalloped by the keels and finely serrated by the striae.

Mean divergence about 70°; length .43 inch; breadth .28.

Station.—Under stones, near low water mark. Habitat.—Panama; C.B.A.! 3 specimens were obtained.

foveata *Adams* **Littorina** (?) [173 : 397] Plate 9, fig. 6

Shell globose conic: dingy white, with a very broad dark brown spiral stripe occupying the middle of the last and more or less of the upper whorls: with several inequidistant spiral raised lines: apex subacute: spire with the outlines moderately curvilinear: whorls nearly four, subangular, with a distinct

suture; last whorl angular below the middle: aperture subovate: labrum very sharp, but much thickened a little behind the edge: columella dilated and thickened: region around the umbilicus much excavated, and forming with the umbilicus a funnel-shaped pit.

Mean divergence about 80°; length .19 inch: breadth .15 inch; length of spire .08 inch.

The generic character of this species is doubtful. It may possibly be a *Narica*.

Station.—Unknown. Habitat.—Panama; C.B.A.! 2 specimens were found in the sand.

[Is in the genus *Fossarus*.]

fusoides *Adams* **Triton** [116 : 340] Plate 8, fig. 1

Shell ovate-fusiform, slender: whitish, stained with brown, with a white spiral stripe near the middle of the whorls: with prominent narrow not approximate ribs, about nine on each whorl, crossed by numerous raised fine spiral lines, of which the alternate ones are mostly larger: apex acute: spire conic: whorls eight, convex, with a well impressed suture: aperture long subovate: canal short.

Mean divergence about 35°; length .76 inch; breadth .28 inch.

Station.—Unknown. Habitat.—Taboga; C.B.A.! We obtained only 1 specimen.

gemmulosa *Adams* **Nassa** [61 : 285] Plate 5, fig. 5

Shell ovate conic, ventricose: whitish, more or less tinged with yellowish brown; with a narrow spiral stripe of brown at the upper margin of the whorls, and another anteriorly; with two or three minute spiral brown lines on the middle of the last whorl, which are interrupted by the nodules: with about fifteen or sixteen minute ribs on each whorl, and spiral raised lines, of which three or four are visible on the spire; with the intersections developed into well rounded nodules: spire with the outlines rectilinear: apex very acute: whorls seven, a little convex, with a distinct suture; last whorl spirally subcanaliculate anteriorly: labrum subacute, well thickened by a varix, coarsely ridged within: labium much arcuated, a little thickened but not appressed: notch deep.

Mean divergence about 56°; length .25 inch; breadth .17 inch; length of spire .15 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 1 specimen was obtained.

gemmulosa *Adams* **Pleurotoma** [143 : 367] Plate 7, fig. 7

Shell long, subfusiform: brown, with some pale spots: surface densely covered with small transverse and spiral ridges, with the intersections developed into elegantly rounded prominent nodules, except near the end of the last whorl, where the transverse ridges are obsolete: apex acute: spire with the outlines very curvilinear: whorls eight, a little convex, with a moderately impressed suture: aperture very narrow, with a small sinus near the suture: labrum thickened without and within: canal very short.

Mean divergence about 33°; length .22 inch; breadth .08 inch; length of spire .14 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 1 specimen was found.

glauca *Adams* **Nassa** [61 : 285] Plate 5, fig. 6

Shell ovate conic, ventricose: glaucous or olivaceous, with a broad spiral stripe of dingy white a little above the suture, whitish about the aperture, deeply colored in the anterior spiral canal: with, on each whorl, about ten ribs, of which the last two or three next to the aperture are nearly obsolete; with many spiral striae, which traverse the ribs: spire with the outlines nearly rectilinear: apex acute: whorls eight, [62] moderately convex, with a distinct suture; last whorl ventricose, with a narrow deep spiral canal anteriorly: aperture subelliptical: labrum subacute, thickened with a stout varix, within with about five acute spiral ridges: labium well thickened, not appressed: notch deep.

Mean divergence about 55°; length .5 inch; breadth .31 inch; length of spire .28 inch.

Var. *a;* with the color nearly black.

Station.—Unknown. Habitat.—Taboga; C.B.A.! 32 specimens were collected.

gracilior *Adams* **Chemnitzia** [167 : 391] Plate 10, fig. 2

Shell very long, conic: very pale yellowish brown: with, on each whorl, about twenty-eight slender ribs, which terminate abruptly just below the periphery of the last whorl: with a well impressed spiral line next behind the anterior termination of the ribs, and a few obsolete spiral striae: spire with the outlines nearly rectilinear except near the apex: whorls twelve, slightly convex, with a well impressed suture: aperture ovate, acute above: labrum very thin: columella a little curved: umbilicus wanting.

Mean divergence about 13°; length .31 inch; breadth .06 inch; length of spire .255 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 2 specimens were found in the sand.

[Is *Turbonilla* (*Strioturbonilla*) *gracilior* C. B. Adams; Dall and Bartsch 1909, Bulletin United States National Museum **68**, p. 58, pl. 4, fig. 6.]

gracilis *Adams* **Columbella** [89 : 313] Plate 7, fig. 5

Shell long ovate conic; upper whorls pale brown; with irregular spots of darker reddish brown, mostly near the suture and nearly covering the last whorl, on the periphery of which is a whitish band articulated with arrow-headed brown spots: with very numerous small ribs, of which the posterior ends only remain on the back of the last whorl; anteriorly with revolving striae: apex acute: spire conic: whorls eight, scarcely convex, with the suture distinctly impressed: aperture narrow: labrum variciform, rather sharp-edged, thickened behind, a little sinuate posteriorly, with a few granules inside: columellar lip nearly smooth.

Mean divergence about 37°; length .3 inch; breadth .125 inch; length of spire .2 inch.

Var. with the color nearly uniform dingy brown.

Station.—Unknown. Habitat.—Panama; C.B.A.! We are indebted to the hermit crabs for 7 specimens.

grandimaculata *Adams* **Pleurotoma** [143 : 367] Plate 7, fig. 9

Shell long, ovate pyramidal: black, with a single spiral series of very large dingy white spots: with excessively minute in-

cremental and spiral striae, the latter of which are obsolete anteriorly; with a sharp simple spiral keel a little below the suture; a little below the middle of the whorls is a sharp tuberculated keel, which is less developed between the tubercles; these tubercles coincide with the white spots, and on the last whorl are transversely elongated; on the last whorl four or five more spiral linear keels are seen: apex acute: spire conic: whorls ten, concave between the keels, with the suture indistinct; aperture rather narrow; labrum moderately thickened, with the sinus rather deep: labium well developed: canal very short.

[144] Mean divergence about 38°; length .95 inch; breadth .35 inch; length of spire .62 inch.

Having received from Mr. Cuming specimens of this species labelled *P. zonulata,* we infer that it has been confounded with that species in collections. Mr. Cuming's specimens are said in the MS. catalogue to have come from the Philippine Is., but as their specific identity with our species is unquestionable, it is probable that the catalogue is erroneous.

Station.—Unknown. Habitat.—Panama; C.B.A.! We obtained 1 fresh and 1 faded specimen.

inconspicua *Adams* **Cingula** (?) [181 : 405] Plate 9, fig. 12

Shell ovate fusoid: white: with several spiral ridges, of which four are seen on the penult whorl, and of which the upper two are less prominent; anteriorly the ridges are also less prominent; with transverse ridges decussating the upper spiral ridges and terminating at the third: apex subacute: spire with the outlines a little curvilinear: whorls five, a little convex, with a well impressed suture; last whorl small: aperture small, ovate, acute above: labrum rather thin: labium well developed: umbilical region a little indented.

Mean divergence about 30°; length .065 inch; breadth .035 inch; length of spire .045 inch.

Some authors would refer this species to *Rissoa:* but the aperture is Turbinoid rather than Melanoid.

Station.—Unknown. Habitat.—Panama; C.B.A.! 3 specimens were found in the calcareous sand.

[Is *Odostomia* (*Chrysallida*) *inconspicua* C. B. Adams; Dall and Bartsch 1909, Bulletin United States National Museum **68,** p. 139, pl. 14, fig. 3.]

inconspicua *Adams* **Oliva** [50 : 274] Plate 6, fig. 4

Shell rather slender: white: smooth: spire about as long as the aperture: apex rather obtuse: whorls six, with a well impressed suture, slightly convex: aperture acuminate in the upper half, subrectangular in the lower half: labrum thin: anterior notch very slight, wide.

Mean divergence about 30°; in another specimen nearly 40°; length .15 inch; breadth .055 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! We obtained only 3 mature specimens and one immature, in picking over several quarts of fine drift materials gathered on the shore near the city wall.

[51] A kindred undescribed species occurs in Jamaica. Like the above and like most of the minute rare tropical species, it appears to have escaped the notice of collectors.

inconspicua *Adams* **Rissoa** (?) [178 : 402] Plate 9, fig. 8

Shell ovate conic: white: with several spiral ridges, of which two or three are seen on the spire: with about twelve or fourteen transverse narrow ridges, which are obsolete anteriorly: apex subacute: spire with curvilinear outlines: whorls four, very convex, with a deep suture: last whorl rather ventricose, short: aperture orbicular, scarcely effuse: lip well thickened: with a very minute umbilicus. Perhaps this species should have been referred to *Cingula*.

Mean divergence about 55°; length .045 inch; breadth .03 inch; length of spire .032 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 1 specimen was obtained.

inconspicuus *Adams* **Triphoris** [159 : 383] Plate 9, fig. 10

Shell long, ovate fusiform, sinistrorsal: blackish red, fading into a cinereous color: with three spiral equidistant strongly nodulous ridges on each whorl, of which the intermediate one is wanting on the upper whorls, and three or four additional scarcely nodulous ridges anteriorly; with about twenty or twenty-two transverse less prominent ridges on each whorl: apex very acute: spire with curvilinear outlines: whorls twelve, moderately convex, with the suture indistinct; last whorl with

the periphery subangular: aperture subrhombic, with a sinus above: labrum much advanced: canal deep, short.

Mean divergence about 22°; length .165 inch; breadth .055 inch; length of spire .13 inch.

Station.—Under stones near low water mark. Habitat.—Taboga and Panama; C.B.A.! 16 specimens were collected.

[Is *Triphoris inconspicuus* C. B. Adams; Bartsch 1907, Proceedings United States National Museum **33**, p. 258, pl. 16, fig. 15.]

inflata *Adams* **Potamomya** [296 : 520] Plate 17, figs. 12-13

Shell ovate, ventricose, inequilateral, moderately inequivalve; posterior margin subtruncated between the extremities of two umbonial angles, of which the upper one is indistinct; ventral margin moderately excurved; anterior margin abruptly and regularly rounded: white beneath a pale brown epidermis: with unequal striae of growth: beaks small: umbones very prominent, somewhat compressed: teeth small; tooth of the left valve with a medial ridge.

Length .7 inch; height .57 inch; breadth .5 inch.

A less ventricose variety has the following dimensions: Length .6 inch; height .46 inch; breadth .33 inch.

Station.—With *P. aequalis,* q.v. Habitat.—Panama; C.B.A.! 3 specimens were obtained with *P. aequalis.*

[Pilsbry (1932, Nautilus **45**, p. 105) created a new subgenus in the genus *Corbula* for this species. It is *Panamicorbula* Pilsbry, the type species, *Potamomya inflata* C. B. Adams.]

inflata *Adams* **Stomatella** [216 : 440] Plate 12, fig. 13

Shell very obliquely elliptical: white, thick and opaque anteriorly, above thinner and translucent: with very fine irre-[217] gular striae of growth; without spiral striae: apex minute, obtuse, prominent: whorls two, very convex, with a well impressed suture; last whorl very oblique, much inflated and very convex: aperture contracted, yet exhibiting the spiral columella to the apex; columellar side of the aperture abruptly arcuated.

Length obliquely .45 inch; breadth obliquely .31 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 1 specimen was found.

infrequens *Adams* **Auricula** [209 : 433] Plate 12, fig. 5

Shell ellipsoidal: brown, with a pale ill-defined spiral band a little below the suture: with fine striae of growth: apex acute: spire with the outlines moderately curvilinear: whorls six, obtusely shouldered, with a deep suture; last whorl compressed: aperture subelliptical, rather wide: labrum very thin: with two plates, of which one is at the anterior part of the aperture and is oblique, and the other is transverse and is at the middle.

Mean divergence about 80°; length .23 inch; breadth .15 inch; length of spire .1 inch.

Station.—Under stones, near high water mark. Habitat.—Panama; C.B.A.! We collected 6 specimens, in company with *Pedipes angulata,* at the base of the sea wall of Panama.

infrequens *Adams* **Bulla (Tornatina)** [214 : 438] Plate 12, fig. 4

Shell cylindric, not compressed about the middle: white: smooth: apex papillary, very minute and prominent: spire moderately elevated, convex: whorls four and one-half, acutely shouldered, with a deeply channeled suture: aperture long and narrow, anteriorly rounded: labrum very thin, much advanced along the middle: columella terminating in a very robust spiral plait.

Mean divergence about 130°; length .28 inch; breadth .11 inch; length of spire .03 inch.

Station.—Unknown. [215] Habitat.—Panama; C. B. A.! 2 specimens were found.

infrequens *Adams* **Rissoa** [179 : 403] Plate 12, fig. 2

Shell very long, ovate conic: white: with, on each whorl, sixteen very obtuse slightly elevated indistinct ribs, which are separated only by striae, and a few microscopic revolving striae: apex subacute: spire with the outlines nearly rectilinear: whorls seven, contracted above, otherwise convex or subangular with a moderately impressed suture; last whorl long, subangular: aperture oblique, subovate, scarcely effuse: labrum much excurved, well thickened: umbilicus wanting.

Mean divergence about 23°; length .24 inch; breadth .075 inch; length of spire .18 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 1 specimen was obtained.

infrequens *Adams* **Triphoris** [159:383] Plate 9, fig. 11

Shell long, conic: blackish red: with three excessively prominent much compressed spiral ridges on the spire, and another on the periphery of the last whorl; with about sixteen or eighteen less prominent transverse ridges on each whorl; anteriorly without sculpture: apex acute: spire with the outlines nearly rectilinear: whorls thirteen, nearly flat, with the suture indistinct; last whorl very short: aperture subquadrate: labrum scalloped by the spiral ridges: canal rather wide, very short.

Mean divergence about 20°; length .13 inch; breadth .045 inch; length of spire .105 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 2 specimens were found.

[Is *Cerithiopsis infrequens* C. B. Adams; Bartsch 1913, Proceedings United States National Museum **40**, p. 355, pl. 37, fig. 1.]

iota *Adams* **Eulima** [198:422] Type lost

Shell subulate: smooth and shining: with a microscopic line a little below the middle of the whorls, above which line the shell is chalcedonic white and translucent, and below which it is transparent: apex subacute: spire much arcuated: whorls ten, moderately convex, with a distinct suture: aperture small, ovate, subeffuse: labrum much advanced along the middle. It may be a *Stylifer*.

Mean divergence about 20°; length .08 inch; breadth .03 inch; length of spire .06 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! We found 1 mature and 1 young specimen.

[Is *Melanella* (*Balcis*) *iota* C. B. Adams; Bartsch 1917, Proceedings United States National Museum **53**, p. 332, pl. 40, fig. 5].

janus *Adams* **Rissoa** [179:403] Plate 12, fig. 1

Shell long, ovate conic: white: anteriorly with fine crowded spiral striae; elsewhere covered with small crowded transverse ribs, which on the last whorl appear merely as transverse striae becoming obsolete near the periphery: apex acute: spire with

the outlines moderately curvilinear: whorls nine, moderately convex, with a lightly impressed suture: aperture large, oblique, moderately effuse below, more deeply effuse above: labrum much advanced along the middle, thickened by a broad stout varix: umbilicus wanting.

Mean divergence about 30°; length .19 inch; breadth .07 inch; length of spire .115 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 2 specimens were found in the sand. Var. a is larger, being .24 inch long.

[Is *Rissoina janus* C. B. Adams; Bartsch 1915, Proceedings United States National Museum **49**, p. 60, pl. 32, fig. 8. *Rissoa janus* var *a* was subsequently described as a new species *Rissoina adamsi* Bartsch 1915, ibid. p. 47, pl. 30, fig. 5. The holotype is in the Museum of Comparative Zoology no. 186424.]

janus *Adams* **Vitrinella** [185 : 409] Plate 15, fig. 5 a–b

Shell subdiscoidal: white: with four very narrow acute spiral keels, of which one on the periphery is very prominent, another a little below the periphery is less prominent, and the other two, on the middle of the upper and lower sides, are moderately developed; with minute spiral striae within the lower keel; otherwise with transverse striae, which are interrupted by the keels: apex prominent; spire moderately elevated: whorls three and one-third, with a distinct suture: aperture orbicular, very oblique: lip slightly thickened, angulated by the keels: umbilicus deep.

Mean divergence 160°; greatest breadth .068 inch; least breadth .06 inch; height .03 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 1 specimen was obtained.

[Is *Cyclostremiscus janus* C. B. Adams; Pilsbry and Olsson 1945, Proceedings Academy Natural Sciences Philadelphia **97**, p. 270, pl. 27, figs. 5, 5a, 5b.]

jugosa *Adams* **Ricinula** [101 : 325] Plate 7, fig. 8

Shell with a rhomboidal outline: mostly dark brown; tubercles mostly white; with a white fascia next below the periphery of the last whorl; with some of the tubercles partly rufous: with eight or nine very prominent transverse ridges, which are crossed by ten or eleven spiral ridges, of which three or four appear on the spire; with the intersections sharply tuber-

culous; with fine spiral striae: apex acute: spire conic: whorls eight or nine, convex, with a moderately impressed suture: aperture rather long: labrum rather sharp, strengthened by the last ridge, which is very long, scalloped by the spiral ridges, with corresponding plaits within: inner lip excavated above, with a few wrinkles above and granules below; canal moderately long. This species is much like a *Murex*.

[102] Mean divergence 55°; length .94 inch; breadth .47 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! Only one specimen was obtained.

[Is *Engina jugosa* C.B.Adams; Pilsbry and Lowe 1932, Proceedings Academy Natural Sciences Philadelphia **84**, p. 64.]

laeve *Adams* **Coecum** [162:386] Plate 17, fig. 5

Shell well arcuated, rather stout, of nearly uniform diameter: white: smooth and shining: apex very prominent.

Length .08 inch; breadth .027 inch.

Var. (?) *minus* is more slender, with the apex less prominent.

Length .062 inch; breadth .02 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 2 specimens were found, viz. 1 of each variety.

laqueatum *Adams* **Coecum** [162:386] Plate 17, fig. 4

Shell slender, moderately arcuated, with the diameter regularly increasing: white: longitudinally furrowed with about 20 shallow somewhat unequal grooves: apex moderately prominent, lateral.

Length .11 inch; breadth .028 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 2 specimens were obtained.

leanus *Adams* **Trochus** [191:415] Plate 13, fig. 9

Shell conic, well elevated: pale yellowish or reddish brown, with broad dark brown oblique flammules; anteriorly somewhat articulated with red and yellowish white in fine con- [192] centric lines: with many elevated granulous spiral lines, of which three larger are next above the suture: spire with the outlines nearly rectilinear: apex acute: whorls nine, planulate or concave next below the suture, very convex or subangular next above the suture, which is moderately impressed,

last whorl subplanulate anteriorly: aperture subquadrate: labrum thin: columella obliquely produced, nearly straight: umbilicus wanting.

Mean divergence about 60°; length .48 inch; greatest breadth .44 inch; least breadth .4 inch.

Station.—Under stones at low water mark. Habitat.—Panama; C.B.A.! 7 specimens were collected on the reef. We have named this pretty species in honor of Isaac Lea, Esq., of Philadelphia.

lugubre *Adams* **Buccinum** [69:293] Plate 5, fig. 7

Shell long ovate-fusiform: very dark brown with a cinereous tinge: with small ribs, from nine to thirteen on each whorl, traversed by rather coarse unequal spiral striae, with the intersections of the larger striae rather acutely nodulous: apex acute: spire conic: whorls eight, very convex, with a [70] moderately impressed suture: aperture ovate: labrum rather sharp, thickened behind: with a short recurved canal.

Mean divergence about 44°; length .67 inch; breadth .31 inch; length of spire .4 inch.

After much doubt respecting the generic characters of this species, we have provisionally referred it to that group of Buccina, which have a short recurved canal.

Station.—Under stones at low water mark. Habitat.—Panama and Taboga; C.B.A.! We collected 175 specimens.

[Is in the genus *Latirus*, Pilsbry and Lowe 1932, Proceedings Academy Natural Sciences Philadelphia **84**, p. 114].

luticola *Adams* **Bulla (Cylichna)** [215:439] Plate 11, fig. 11

Shell subcylindric, wider anteriorly: pale horn color, subtransparent: with the striae of growth very minute: apex in a deep narrow umbilicus, which is partly covered by the upper part of the labrum: last whorl compressed around the middle: aperture rising higher than the umbilicus, linear above, suborbicular below: labrum very thin, much advanced along the middle: columella thickened with a callus: anterior umbilical region indented, partly covered with a deposit.

Length .2 inch; breadth .095 inch.

Station.—This species was found crawling on liquid mud, near low water mark, at the bottom of a steep sand beach.

Habitat.—Panama; C.B.A.! 28 specimens were collected half a mile east of Panama.

major *Adams* **Chemnitzia** [167 : 391] Plate 10, fig. 1

Shell conic, long: dingy white: with, on each whorl, about twenty-four stout obtuse approximate ribs, which are obsolete anteriorly; with lightly impressed fine spiral striae over all the surface except the summits of the ribs: spire with the outlines rectilinear: whorls fifteen, moderately convex, with a well impressed suture: aperture subovate: labrum thin: columella nearly straight: umbilicus wanting.

Mean divergence about 17°; length .38 inch; breadth .09 inch; length of spire .31 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 1 specimen only was found.

[Is *Turbonilla* (*Mormula*) *major* C. B. Adams; Dall and Bartsch 1909, Bulletin United States National Museum **68**, p. 116, pl. 11, fig. 11.]

marginata *Adams* **Chemnitzia** [167 : 391] Plate 10, fig. 3

Shell fusiform cylindric; dingy white: with, on each whorl, [168] eleven or twelve very prominent strong compressed ribs: in the interspaces with fine spiral striae, of which five or six are seen on the penult whorl: apex with the axis oblique: spire with the outlines curvilinear: whorls seven, margined above with a spiral compressed ridge, moderately convex, with a well impressed suture: last whorl with the periphery rounded: aperture small, oblique, ovate: labrum thin: labium with a distinct deposit: umbilicus wanting.

Mean divergence about 28°; length .115 inch; breadth .042 inch; length of spire .08 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 2 specimens were found.

[Is *Odostomia* (*Pyrgulina*) *marginata* C. B. Adams; Dall and Bartsch 1909, Bulletin United States National Museum **68**, p. 169, pl. 18, figs. 5–5a.]

maritima *Adams* **Cyrena** [275 : 499] Plate 20, figs. 5–6

Shell subtriangular, but with the ventral margin well excurved, ventricose, thin: dingy white, more or less violaceous in the posterior half: with an olivaceous coarsely striate epi-

dermis: with well impressed striae of growth: beaks very prominent, approximate: umbones very prominent: with a prominent posterior angle, and another less developed posterior [276] angle, which defines the area of the corselet: with an indistinct intermediate angle: lunule broad and deep, but not well defined: ligament large: margins thin: with all the cardinal and lateral teeth well developed, but not thick.

The dimensions of two specimens are as follows:—

Length 2 inches; height 1.75 inches; breadth 1.5 inches.
" 2.7 " " 2.25 " " 1.95 "

Station.—In impalpable mud, under bushes, at high water mark, where a small stream emptied.

Some of the dead shells, which had not been moved from their station, had Balani growing in them.

Habitat.—Panama; C.B.A.! 2½ miles east of Panama 9 specimens were collected.

[Is in the genus *Polymesoda.*]

megasoma *Adams* **Littorina** (?) [174 : 398] Plate 11, fig. 6

Shell obliquely ovoid: dingy white: with eight or nine small spiral ridges, of which three are seen on the spire; with very coarse deep regular transverse striae: apex acute: spire very small, with the outlines nearly rectilinear: whorls three, angular, with an excavated suture: last whorl very large and obliquely dilated: aperture subelliptical, with the margin continuous and thin: umbilical region well defined by the anterior spiral ridge, well excavated, and forming with the umbilicus a funnel-shaped pit.

Mean divergence about 135°; length .09 inch; breadth .09 inch; length of spire .035 inch.

This species also is referred to *Littorina* with much hesitation: it approaches *Narica* more nearly than any of the species which we have mentioned as resembling that genus.

Station.—Unknown. Habitat.—Panama; C.B.A.! 1 specimen was found in the sand.

[Is in the genus *Fossarus.*]

minor *Adams* **Marginella** [40 : 264] Plate 6, fig. 3

Shell ovate: white, or pale horn color, subtransparent; rather thin, smooth: spire slightly elevated: whorls about three (?)

with a very indistinct suture: aperture linear: lip rather thin at the margin, thickened behind, posteriorly ascending the spire: columella with two well developed plaits at the end, with a third one less developed, and sometimes with a fourth which is more or less indistinct. Length, .09 inch: breadth, .063 inch: some of our specimens, which appear to be full grown, are much smaller.

This little shell closely resembles the Caribbean species, *M. lavelleana* Orb. (*M. minima* Guild.): the most obvious difference is in the outline, which in the Caribbean species is broader across the upper part of the last whorl, the lip consequently being, at this part, more excurved.

Station.—Unknown. Habitat.—Panama; C.B.A.! We obtained 10 more or less perfect specimens from the calcareous sand, which had been washed up near the sea wall of Panama.

[Is *Marginella* (*Gibberula*) *minor* C. B. Adams; Pilsbry and Olsson 1941, Proceedings Academy Natural Sciences Philadelphia **93**, p. 27.]

minus *Adams* **Coecum laeve** (?) var. [162 : 386]
Type MCZ 186582

[Is *Coecum laeve* C. B. Adams, which see.]

minuta *Adams* **Vitrinella** [186 : 410] Plate 14, figs. 1–2

Shell discoidal: dingy white, shining: with excessively minute transverse striae: apex obtuse: spire scarcely elevated: whorls nearly three, depressed above, with a well impressed suture; last whorl much depressed, subangular at the periphery: aperture rather large, orbicular: labrum slightly thickened: umbilicus rather deep, nearly covered.

Mean divergence about 170°; greatest breadth .042 inch; least breadth .036 inch; height .017 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 4 specimens were found in the calcareous sand.

[Is *Solariorbis minutus* C. B. Adams; Pilsbry and Olsson 1952, Proceedings Academy Natural Sciences Philadelphia **104**, p. 48; figured by Pilsbry and Olsson 1945, ibid. **97**, pl. 26, figs. 1–2.]

modesta *Adams* **Vitrinella** [186 : 410] Plate 16, fig. 1, a–b

Shell discoidal: dingy white, translucent: with a spiral elevated line next below the suture, and a spiral keel around the

umbilicus; with few microscopic spiral striae about the periphery of the last whorl: apex not prominent: spire a little elevated and regularly convex: whorls three and one-half, with the suture distinct: aperture orbicular: umbilicus deep.

Mean divergence 170°; greatest breadth .06 inch; least breadth .05 inch; height .028 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 1 specimen was obtained.

[Is *Vitrinella modesta* C. B. Adams; Pilsbry and Olsson 1952, Proceedings Academy Natural Sciences Philadelphia **104**, p. 72; figured by Pilsbry and Olsson 1945, ibid. **97**, p. 278, pl. 28, fig. 1, a–b.]

moesta *Adams* **Columbella** [94 : 318] Plate 7, fig. 6

Shell slender, subfusiform: black, or brownish black, with the color less intense on the back of the last whorl: upper [95] whorls smooth or with one or two revolving striae; middle whorls with twelve to fifteen ribs, with the interstices spirally striate; with the ribs and striae obsolete on the back of the last whorl; more strongly striated anteriorly: apex acute: spire very slender: whorls eight, scarcely convex, with the suture lightly impressed: aperture long and narrow: labrum varicose, very thick, sinuate posteriorly, crenulated within: columellar lip nearly smooth.

Mean divergence about 35°; length .3 inch; breadth .11 inch; length of spire .17 inch.

Station.—We found this species about sticks and stones in a grove of trees, a little above half tide level. Habitat.—Panama; C.B.A.! 58 specimens were obtained about two miles west of the city.

monstrosum *Adams* **Coecum** [162 : 386] Plate 17, fig. 2

Shell well arcuated, stout in the lower half and very slender in the upper half, with the transition abrupt, as if the effect of an accident: ivory white: on the upper part with about 18 rather stout approximate moderately prominent rings with flat [163] summits; in the lower part with about 12 very stout prominent not closely approximate rings with flat summits; with 2 or 3 ribs on the middle with intermediate characters: apex prominent.

Length .09 inch; breadth of the upper part .018 inch; breadth of the lower part .03 inch.

This extraordinary shell appears like a monstrosity. It cannot however be a deformed *C. firmatum,* since it is the *last half* of the shell which resembles that species. If it were the last half which is contracted, it would look more like the effect of an accident. But accidents to mollusks do not, so far as we have seen, cause a greater development of the shell.

7 specimens, agreeing in all the above described characters, establish the species.

Station.—Unknown. Habitat.—Panama; C.B.A.!

neglecta *Adams* **Mangelia** [149 : 373] Plate 8, fig. 4

Shell subfusiform: pale brownish red: with, on each whorl, eight or nine prominent curved ribs, and an elevated spiral line on the middle of the whorls, which becomes obsolete on the last whorl; anteriorly with several spiral striae: apex acute: spire with the outlines moderately convex: whorls seven, rather convex, with a distinct suture: aperture rather narrow, mostly parallel with the axis of the spire: labrum much thickened within and without, with a narrow sinus: canal very short.

Mean divergence about 40°; length .2 inch; breadth .07 inch; length of spire .11 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! We obtained 2 specimens from the calcareous sand at Panama; also other 2, of a more slender variety.

This is one of the many species whose claim to a place in the genus *Mangelia* will not be universally conceded.

neglecta *Adams* **Ovula** [31 : 255] Plate 6, fig. 1

Shell rather slender: dark violaceous red, sometimes with a light tinge of brown; paler on the lip: smooth, sometimes with microscopic revolving striae: aperture very narrow in the posterior three-fifths, wider anteriorly; slightly produced at both extremities, and slightly emarginate anteriorly: lip well thickened, nearly straight along the middle: columella acuminate at both extremities, with a longitudinal impressed line, and a callus behind it. Length, .31 inch; breadth, .1 inch.

This species resembles the fig. of *O. rufa,* Sowb., which is represented as much larger, with a broader aperture.

Station.—With *O. avena,* which see. Habitat.—Panama.—C.B.A.! We collected 13 specimens on the reef.

neglectum *Adams* **Cerithium** [154:378] Plate 9, fig. 9

Shell long, ovate conic: blackish red, with the apex white: with three prominent spiral ridges on each whorl, of which the upper two are less distant; with prominent transverse ridges, sixteen or eighteen on the last whorl, where they are less robust than on the spire, and which become obsolete on the periphery of the last whorl; with the intersections developed into very prominent elegantly rounded nodules; anteriorly with two additional subgranulous spiral ridges; apex acute: spire with curvilinear outlines: whorls ten, moderately convex, with the suture indistinct; last whorl rather short: aperture obliquely subovate: labrum a little modified by the spiral ridges: canal deep, very short.

Mean divergence about 20°; length .125 inch; breadth .04 inch; length of spire .09 inch.

Station.—Under stones, in old shells, in dead sponges, &c., near low water mark. [155] Habitat.—Panama; C.B.A.! 33 specimens were collected.

[Is *Cerithiopsis* (*Cerithiopsis*) *neglecta* C. B. Adams; Bartsch 1913, Proceedings United States National Museum **40,** p. 343, pl. 40, fig. 5.]

nivea *Adams* **Crepidula** [234:458] Plate 11, figs. 12–13

Shell ovate-elliptic: rather thick: within snow white: without dingy white, sometimes with a faint tinge of brown: very irregularly concentrically more or less wrinkled, with very distinct striae of growth: apex turned more or less to the right, moderately prominent, marginal: septum longitudinally subangular, with a deep sinus at the left and a shallow one at the right: margin thick, exhibiting striae of growth. It closely resembles *C. unguiformis,* but constantly differs in characters and station.

Length 1.4 inch; breadth 1 inch; height .4 inch.

Station.—Under stones, near low water mark. Habitat.—Panama; C.B.A.! 45 specimens were collected on the reef.

[Is *Crepidula* (*Ianacus*) *nivea* C. B. Adams; Hertlein and Strong 1955, Bulletin American Museum Natural History **107,** p. 279.]

notabilis *Adams* **Rissoa** [180:404] Type lost

Shell long ovate-conic: white: with, on each whorl, about fourteen transverse very prominent ribs, which have concave

summits; with four spiral keels, of which the upper two are more distant and are seen on the spire on each side of the suture; the transverse ribs are smaller in the parts between the second and third keels, and are obsolete below the third: apex subobtuse, smooth and shining: spire with the outlines rectilinear except near the apex: whorls six, abruptly shouldered, planulate, with the suture subcanaliculate: aperture ovate: umbilicus wanting.

Mean divergence about 24°; length .06 inch; breadth .027 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 1 specimen was found.

[The holotype of this species was lost by P. P. Carpenter. Concerning this species he wrote (1863, Proceedings Zoological Society London, p. 353) "After drawing this unique shell carefully under the microscope, and making copious notes on the diagnosis from the specimen, an untoward cough lodged it among the meshes of the Curator's carpet, whence I endeavoured in vain to extricate it. This unfortunate accident is, however, the less to be regretted, as I can state with perfect confidence that it was exactly identical with another shell in the collection, P [anama] 255 [*Cingula turrita* C. B. Adams], q.v.; and with M [azatlan Catalogue] 498, *Parthenia quinquecincta.* The 'concave summits' of the ribs imply that the ribs are sharp, with concave interstices; and the 'upper keel' is simply due to the angulation of the whorls. Though the lip was broken, the columellar plait, as well as the sinistral apex, escaped the Professor's notice."

As noted above, Carpenter definitely states that *Rissoa notabilis* C. B. Adams was the same as *Cingula turrita* Adams and his own *Parthenia quinquecincta.* Therefore, *notabilis* being the first name introduced, becomes the name for the species. Consequently, the new name *Odostomia* (*Ividella*) *orariana* introduced by Dall and Bartsch (1909, Bulletin United States National Museum **68,** p. 175) for *Cingula turrita* C. B. Adams is unnecessary. This species should be referred to as *Odostomia* (*Ividella*) *notabilis* C. B. Adams with all of the above mentioned names included in the synonymy. Though Dall and Bartsch considered *quinquecincta* Carpenter as a distinct species, we agree with Carpenter that it is identical with C. B. Adams' species.]

osculans *Adams* **Crepidula** [234 : 458] Plate 16, fig. 4, a–b

Shell elliptical: pale horn color, subtransparent: surface minutely decussated with numerous very small radiating and concentric ridges: apex subterminal, very prominent, not marginal, with the nuclear portion smooth, shining, transparent and slightly directed to the right: septum but little above the margin, extremely narrow or linear, extending around the posterior

part of the shell: margin very thin. In some respects, this species is allied to *Pileopsis*.

Length .14 inch; breadth .1 inch; height .045 inch.

[235] Station.—Unknown. Habitat.—Panama; C.B.A.! Only 1 specimen of this extraordinary species was obtained.

osculans *Adams* **Purpura** [79:303] Types lost

Shell obliquely rhombic: dingy white, pure white within: with, on each whorl, 9 transverse, rather small, prominent, well-rounded ridges, which are produced to the anterior extremity: with crowded spiral closely imbricately scaled narrow ridges, which traverse the transverse ridges, and of which the alternate ones are more prominent: apex acute: spire with the outlines rectilinear: whorls six and one-half, convex, with a well-impressed suture: aperture obovate: labrum finely scalloped, transversely grooved within: with a short, deeply-notched canal. Allied to *Purpura galea* and other kindred species.

Mean divergence about 70°; length .27 inch; breadth .17 inch; length of spire .12 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 2 specimens were obtained.

[This species appears to be the young of *Rhizochcilus nux* Reeve; Carpenter 1863, Proceedings Zoological Society London, p. 344.]

pacifica *Adams* **Gouldia** [275:499] Plate 20, figs. 3–4

Shell subtriangular, but with the ventral margin well excurved: the color varying in different specimens from dingy white to pale brown, often tinged with red about the beaks, with some narrow rays of brown, and rarely with short irregular lines of brown: with eight to twelve stout subequal concentric ridges: sometimes radiately striated; beaks very acute and closely approximate: posterior area moderately depressed: lunule defined by a well impressed line, rising at the margin of the valves: margin of the interior not crenulate. It is closely allied to *G. parva* Ad.

Length .22 inch; height .19 inch; breadth .09 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! We collected 4 entire shells and 60 odd valves.

[Is *Crassinella pacifica* C. B. Adams; Pilsbry and Olsson 1941, Proceedings

Academy Natural Sciences Philadelphia **93,** p. 56; Hertlein and Strong 1946, Zoologica **31,** p. 103.]

panamensis *Adams* **Auricula** [209:433] Plate 13, fig. 5

Shell long ovate: blackish red throughout except that the plaits are white: smooth and shining, with a few microscopic spiral striae near the apex: apex acute: spire with the outlines very curvilinear over the middle whorls, and nearly rectilinear on the lower whorls: whorls eight, convex, imbricately appressed; [210] upper part of the lower whorls compressed; last whorl subangular next below the compressed part: aperture rather long, very acute above: labrum moderately thickened but not reflected: with three plaits on the left side, of which the middle one is larger and the lower one is the least; sometimes with a small toothlike plait on the right side.

The general form varies, as will be seen in the following dimensions of two specimens, the first number expressing the mean divergence, the second the length, the third the breadth, and the fourth the length of the spire:—

50°; .44 inch; .17 inch; .23 inch.
65°; .37 " .2 " .13 "

Station.—Under stones, at high water mark; or crawling over wet stones. Habitat.—Panama and Taboga; C.B.A.! 650 specimens collected near the sea wall of Panama, where the species was most abundant.

panamensis *Adams* **Chemnitzia** [168:392] Plate 10, fig. 4

Shell long, conic: white: with, on each whorl, about twenty-seven oblique ribs, which become obsolete on the middle of the last whorl, the anterior part of which is very smooth: spire with the outlines nearly rectilinear: whorls twelve, moderately convex, with a well impressed suture: last whorl sub-angular at the periphery: aperture obliquely ovate: labrum thin: columella nearly straight: umbilicus wanting.

Mean divergence about 17°; length .22 inch; breadth .055 inch; length of spire .17 inch.

Station.—In the sand between high water and half tide levels. Habitat.—Panama; C.B.A.! 11 specimens were found on the reef.

[Is *Turbonilla* (*Strioturbonilla*) *panamensis* C. B. Adams; Dall and Bartsch 1909, Bulletin United States National Museum **68,** p. 42, pl. 3, figs. 12–12a.]

panamensis *Adams* **Nassa** [64:288] Plate 5, fig. 9

Shell long ovate conic: bluish olivaceous, with a whitish spiral line below the middle of the whorls; colors more distinct on the ribs; whitish near the upper part of the labrum; anteriorly with a pale spiral band, which is sometimes obsolete: with, on each whorl, about eleven narrow acute ribs, which are obsolete anteriorly; with very minute spiral striae, which are less distinct below the middle of the whorls: spire with the outlines moderately curvilinear: apex acute: whorls eight, slightly convex, with a distinct suture; last whorl not ventricose: aperture elliptical; labrum thickened by a stout varix: labium thickened but not appressed: notch deep.

Mean divergence about 37°; length .58 inch: breadth .25 inch; length of spire .35 inch.

Station.—Under stones, a little above low water mark, in company with several species of *Columbella.* Habitat.—Panama; C.B.A.! We collected about 1500 specimens on the reef.

panamensis *Adams* **Vitrinella** [186:410] Plate 14, fig. 5, a–b

Shell subdiscoidal: white: with a stout spiral keel on each side of the periphery of the last whorl, and two others on the lower side of the shell, of which one next to the umbilicus is slightly prominent; with transverse rather distant curved ribs: apex obtuse: spire convex, but little elevated: whorls a little [187] more than three, convex above and concave below the middle, with a distinct suture: aperture orbicular: labrum angulated externally by the spiral ridges, a little thickened: umbilicus deep, narrow. A variety has the ridge around the umbilicus well developed.

Mean divergence about 160°; greatest breadth .07 inch; least breadth .06 inch; height .04 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 24 specimens were found in the calcareous sand.

[Is *Cyclostremiscus panamensis* C. B. Adams; Pilsbry and Olsson 1945, Proceedings Academy Natural Sciences Philadelphia **97**, p. 267, pl. 26, fig. 5, a–b.]

parva *Adams* **Vitrinella** [187:411] Plate 14, fig. 3, a–b

Shell subdiscoidal: white: with numerous stout prominent transverse ribs; with, on each side of the periphery of the last whorl, a not very prominent keel, of which the upper one is

visible on the spire: apex very obtuse: spire convex, slightly elevated: whorls three and a half, angular above, concave between the angle and the keel, with the suture not very distinct; last whorl very large: aperture orbicular, very oblique in consequence of the advance of the labrum above: lip slightly thickened: umbilicus deep, narrow. This species resembles *V. panamensis.*

Mean divergence about 160°; greatest breadth .047 inch; least breadth .04 inch; height .026 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 13 specimens were found in the calcareous sand.

[Is *Cyclostremiscus parvus* C. B. Adams; Pilsbry and Olsson 1945, Proceedings Academy Natural Sciences Philadelphia **97,** p. 269, pl. 26, fig. 3, a–b.]

parvum *Adams* **Coecum** [163 : 387] Holotype, MCZ 186586

Shell well arcuated, slender, of nearly uniform diameter: white: with about 15 acute-edged moderately prominent distant rings: apex lateral, prominent.

Length .065 inch; breadth .019 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 1 specimen was obtained.

[Only a small apical fragment of the holotype remains and this is not worthy of photographing. The unique specimen was dead and beach rolled at the time of collecting. P. P. Carpenter believed this to be the same as his *Caecum undatum* (1863, Proceedings Zoological Society London, p. 360.]

paupercula *Adams* **Cingula** [181 : 405] Plate 9, fig. 4

Shell conoid: dingy white, sometimes with a pale brown spiral stripe on the middle of the whorls: surface smooth: apex subacute: spire with the outlines nearly rectilinear: whorls five, planulate, with a well impressed suture: aperture broadly ovate: labrum slightly thickened: labium well developed: umbilicus very minute.

[182] Mean divergence about 33°; length .085 inch; breadth .05 inch; length of spire .058 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 4 specimens were found in the calcareous sand.

[This is a good species in the genus *Cingula.* It is not *Odostomia* (*Chrysallida*) *paupercula* C. B. Adams as given by Dall and Bartsch (1909, Bulletin United States National Museum **68,** p. 144, pl. 14, fig. 4). They figured and described

the type of *Cerithium pauperculum* C. B. Adams, but referred to it as *Cingula paupercula*. This was an understandable error as Adams used only an initial for the genus. Later, following the same error, Bartsch in his paper on the genus *Cingula* (1912, Proceedings United States National Museum **41**, p. 485) again stated that it is in the Pyramidellidae. He apparently never saw the type of *Cingula paupercula* Adams.]

pauperculum *Adams* **Cerithium** [155 : 379] Plate 8, fig. 9

Shell slender: pale horn color: with several spiral keels, of which five are visible on the spire, with many transverse ridges on the upper whorls, which are reduced to raised lines on the lower whorls, with the intersections slightly granulous; anteriorly the spiral ridges are obsolete: apex acute: spire with the outlines nearly rectilinear: whorls eight, slightly convex, with a moderately impressed suture; last whorl rather long: aperture long, acute above, with a small umbilical chink: canal very short.

Mean divergence about 18°; length .13 inch; breadth .04 inch; length of spire .09 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 2 specimens were found.

[Is *Odostomia* (*Chrysallida*) *paupercula* C. B. Adams; Dall and Bartsch (1909, Bulletin United States National Museum **68**, p. 144, pl. 14, fig. 4) described and figured the type of this species but referred to it *Cingula ? paupercula* Ad. This was in complete error. *Cingula paupercula* Adams is a smooth, conical shell, while *Cerithium pauperculum* is highly sculptured. Adams did not write generic names on his labels and so there were two species in his collection labeled *C. pauperculum* or *paupercula*. Unfortunately Dall and Bartsch failed to check Adams' original description.]

perparva *Adams* **Vitrinella** [187 : 411] Plate 14, fig. 4, a–b

Shell subdiscoidal: white: with a very prominent acute spiral keel on each side of the periphery of the last whorl, and a less prominent one around the umbilicus; with transverse [188] wrinkles, which are obsolete on the upper part of the whorls; apex obtuse: spire flat: whorls nearly three, moderately convex, with a distinct suture; last whorl very large: aperture orbicular, very oblique: lip slightly thickened: umbilicus deep.

Mean divergence 180°; greatest breadth .037 inch; least breadth .031 inch; height .015 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 3 specimens were found in the calcareous sand.

[Is *Cyclostremiscus perparvus* Adams; Pilsbry and Olsson 1945, Proceedings Academy Natural Sciences Philadelphia **97**, p. 270, pl. 26, fig. 4, a–b.]

phasianella *Adams* **Turbo** (?) [195 : 419] Plate 16, figs. 5–8

Shell ovate conoid: color various, mostly red or brown, sometimes uniform, frequently in dark flammules on a light ground, sometimes with spiral darker stripes or series of spots: surface covered with strong spiral striae: apex subacute: spire conoid, with the outlines moderately curvilinear: whorls five, convex, with a distinct suture: aperture broad ovate, subeffuse: labrum thin: umbilicus very small.

Mean divergence about 64°; length .16 inch; breadth .11 inch; length of spire .08 inch.

Operculum calcareous, very thick and solid. But for the want of a polished surface, this species would have been referred to *Phasianella.* It may be a *Trochus.* It may be *Littorina phasianella* Phil. in Zeitschr. Malak. 1848, p. 149.

[196] Station.—Unknown. Habitat.—Panama; C.B.A.! In the calcareous sand we collected 112 specimens in various stages of growth.

pholadiformis *Adams* **(Byssoarca) Arca** [260 : 484] Plate 19, figs. 11–12

Shell extremely elongated, subcylindrical, contracted anteriorly, very inequilateral: inferior margin a little irregular, somewhat excurved, scarcely gaping for the passage of the byssus: posterior margin very oblique, moderately excurved: anterior margin well rounded: dingy white: surface very finely and closely fimbriated, with the concentric ridges larger except above the posterior angle of the umbo, on which the concentric ridges are lamellar: with the intersections nodular and deeply marked beneath with the arcuate striae of growth: umbones flattened, with a very prominent and very oblique posterior angle, from which the radiating ribs divaricate: beaks small: area of ligament linear, nearly concealed: margins of the interior finely crenulate; teeth obsolete at the middle of the series, at the ends divaricate. The sculpture is like that of *A. divaricata* Reeve.

Length 1.25 inch; height .53 inch; breadth .48 inch.

Station.—In soft stones, near low water mark. Habitat.—

Taboga; C.B.A.! 2 specimens of this extraordinary shell were obtained.

planulata *Adams* **Calyptraea** [223:447] Plate 13, figs. 11–12

Shell flat, suborbicular: thin: pure white: with very minute radiating striae, which are obsolete around the apex: apex subcentral, acute, slightly elevated above the plane of the shell: cup with the sides free and the corners acute, thin, curved through about 220°: margin very thin. It belongs to *Calyptraea* as restricted by Broderip.

Length .32 inch: breadth .35 inch.

Station.—Adhering to an oyster, a little below half tide level. Habitat.—Panama; C.B.A.! Only 1 specimen was found.

ponderosa *Adams* **Haliotis** Type lost

1848, American Journal of Science and Arts (2) **6**, p. 138.

H. t: magna, ovata, crassissima, convexa; striis incrementi magnis, irregularibus; rugis concentricis, irregularibus, subnodosis; spira elevata, subterminali; foraminibus quatuor, magnis; externe rubra, intus maculis plurimis rubris viridibusque iridescente.

Shell ovate, convex, ponderous, with coarse unequal incremental striae and concentric ridges (not folds), and a few broad low tubercles on the ridges; spire elevated, subterminal; four perforations open, the inner one very large; exterior surface brick red; inner surface elegantly iridiscent with innumerable shades of delicate red, purplish red, and green.

Length $8\frac{1}{2}$ in.; breadth $6\frac{2}{3}$ in.; depth within $3\frac{1}{8}$ in.

Comparison with the well known *H. rufescens,* Swains., will render a figure unnecessary. A large specimen of Swainson's shell before me, has exactly the same superficial dimensions, but is only $2\frac{1}{2}$ inches deep. *H. ponderosa* is nearly or quite destitute of the spiral waves of *H. rufescens,* is of a darker red without, wants the red inner margin [p. 139] of the outer lip, and within has the clouds of iridescent colors remarkably small and numerous, while in *H. rufescens* they are remarkably large. It is more ponderous than any *Haliotis* which we have seen, weighing 2 lbs. 2 oz. avoirdupois.

Zoological Museum, Amherst College. Hab.—?

Not finding this species in Reeve's very complete and excellent monograph, I have ventured to describe it as new.

[Bartsch (1940, Proceedings United States National Museum **89,** p. 52, pl. 7) redescribed and figured this species from Adams' holotype specimen. The type, however, was lost subsequent to Bartsch's work; it was not in the Adams' collection at the time it was transferred to the Museum of Comparative Zoology. Bartsch stated that it appeared to be related to *Haliotis rufescens* Swainson, but that it could be distinguished by its well elevated spire, pale interior and more ponderous shell.]

proxima *Adams* **Nassa** [64 : 288] Plate 6, fig. 5

Shell like that of *N. versicolor* (v. infrà), but much more slender, with the ribs less prominent, and very densely covered with very minute uninterrupted striae, which give a silky lustre to the surface.

Mean divergence about 38°; length .44 inch; breadth .21 inch; length of spire .28 inch.

[65] Station.—Unknown. Habitat.—Taboga; C.B.A.! One specimen was obtained.

proximum *Adams* **Amphidesma** [289 : 513]
Plate 18, figs. 14–15

Shell suborbicular, slightly flexuous, a little inequilateral, with the anterior dorsal margin concave, with the posterior dorsal margin a little excurved, subtruncated posteriorly, otherwise with the margins well rounded: snow white, with a thin slate or umber-colored epidermis: centrally and anteriorly with very fine rather distant raised lines; with extremely minute [290] radiating striae over the whole surface: beak small, approximate: left umbo more convex than the right one: corselet and lunule long and narrow, concave. It is closely allied by varieties to *A. ellipticum* Sowb.: it corresponds mostly to the descriptions of *A. lenticulare* Sowb., but the figures of that species in Sowb. Conch. Ill. and Hanley App. Wood Ind. appear to represent a distinct species.

Sometimes the shell is tinged with brownish orange near the beaks and middle portion, especially in the interior. In some specimens the inner surface within the pallial line is finely and deeply punctated, and the deep pallial sinus is marked with striae radiating from the opening of the sinus.

Length 1.8 inch; height 1.58 inch; breadth .82 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 18 specimens were taken on the reef at low water mark.

puella *Adams* **Tellina** [283 : 507] Plate 19, figs. 13–14

Shell elongate, rather solid, convex, moderately inequilateral; ventral margin slightly excurved, posteriorly straight; anterior margin broadly rounded; anterior dorsal margin slightly excurved; posterior dorsal margin straight, rapidly sloping to an acute posterior extremity; flexure moderate: white, more or less deeply tinged with red, mostly near the margin: shining; with excessively minute concentric striae, and some faint microscopic radiating striae: beaks not very prominent: ligament small: lateral teeth well developed.

Length .9 inch; height .53 inch; breadth .28 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 12 odd valves were collected.

pulchrior *Adams* **Columbella** [96 : 320] Plate 6, fig. 10

Shell rather long ovate: with a whitish revolving band next below the suture articulated with large spots of a dark slate color; with a translucent ground of pale yellowish brown, on which are placed in quincunx order rather numerous, excessively minute sharply defined dots of reddish brown; with one or two large irregular spots of dark brown near the end of the last whorl: surface smooth and shining: apex acute: spire conic: whorls six or seven, scarcely convex, with the suture lightly impressed: aperture narrow: labrum rather sharp, thickened behind, with a few granules inside: columellar lip nearly smooth.

Mean divergence about 45°; length .15 inch; breadth .07 inches; length of spire .075 inches.

Station.—Under stones near low water mark. Habitat.—Panama; C.B.A.! We found of this rare and elegant little shell only 5 specimens.

pulchrum *Adams* **Cerithium** [156 : 380] Plate 11, fig. 1

Shell rather long, subconic; very dark brownish red, with a yellowish white spiral line on the middle of the whorls: with about forty slender acute ribs on each whorl, which terminate

abruptly on the periphery of the last whorl; with very stout varices 240° distant; with a narrow acute spiral keel, above the middle of the whorls, traversing the ribs and varices: with a few raised spiral lines and many minute spiral striae, which do not traverse the ribs; anteriorly with crowded coarse spiral striae: apex acute: spire with the outlines moderately curvilinear: whorls eleven, convex, with a deep suture; last whorl short: aperture large, quadrate-orbicular, broadly effuse above, with a very narrow sinus in place of the canal; labrum and labium continuous, very thick and highly polished.

Mean divergence about 33°; length 1.25 inch; breadth .65 inch; length of spire .82 inch.

This species must closely resemble *C. Montagnei* Orb. But in Kiener's figure and description, Orbigny's species appears to be destitute of varices. Menke, however, in his specimen of *C. Montagnei* from Mazatlan, finds 48 ribs on the last whorl, but mentions no varices.

Station.—Half buried in muddy sand under bushes at high water mark. Habitat.—Panama; C.B.A.! 125 specimens were collected, near the mangrove thicket, $2\frac{1}{2}$ miles east of Panama.

[Is *Cerithidea pulchra* C. B. Adams. There has been considerable confusion and misunderstanding concerning this species of Adams. It has been considered a subspecies of *Cerithidea montagnei* d'Orbigny by Hertlein and Strong (1955, p. 269) and Bequaert (1942, p. 25) considered it a variety of *C. hegewischii* Philippi. Carpenter (1863, p. 350) and Zilch (1954, p. 83) both regarded it as a good species, and, after examining the types, I agree with them. There appear to be no intergrades between *pulchra* and *hegewischii*. *Cerithidea pulchra* has much finer, more blade-like costae than *hegewischii* and the lip is always a dark chocolate brown in color. In *hegewischii* the lip is white, with occasional specimens having the lip edged with brown, the costae are rounded, much heavier and generally not as numerous as they are in *pulchra*. In addition, the spiral sculpture of the two species is quite different; in *pulchra* there is a fine spiral cord at the whorl shoulder with a much weaker one between it and the suture; the remaining spiral sculpture is composed of very fine threads which do not cross the costae so that the shell is not nodulous in appearance. In *hegewischii* there are several spiral cords of about equal strength which are more or less evenly spaced and which cross the axial costae giving the shell a nodulose appearance.

Cerithidea pulchra differs from *C. montagnei* d'Orbigny in producing varices, and in having a definite spiral sculpture. In addition, the color pattern is quite different; *montagnei* has a white band at the suture and another at the whorl periphery, while *pulchra* has a single yellow-brown band at the whorl periphery. See also the notes under *Cerithium validum* C. B. Adams.]

pygmaea *Adams* **Cancellaria** [136 : 360] Plate 8, fig. 5

Shell subovate, short; pale wax color, with minute dark brown dots on the ribs, and dark brown irregular rays on the upper part of the last whorl; with slender prominent ribs, which are only nine in number on the last whorl, but are crowded and numerous on the spire, and which are much developed at the angle of the whorls; with several fine raised spiral lines, which are stouter on the summits of the ribs, and crowded intermediate microscopic striae: apex subacute: spire with the outlines rectilinear: whorls five, acutely shouldered, with a broad concave area above, moderately convex below the angle, with a well impressed suture: aperture triangular, effuse below: labrum thickened by the last rib; labrum thin, elevated: columella with two lamelliform slightly oblique plaits; umbilicus narrow, deep, bounded by an acute angle in the last whorl.

Mean divergence about 100°; length .33 inch; breadth .25 inch; length of spire .15 inch.

This species is allied to *C. contabulata* Sowb., and *C. bicolor* Hinds.

Station.—Unknown. Habitat.—Taboga; C.B.A.! One specimen was found.

pygmaeum *Adams* **Coecum** [163 : 387] Plate 17, fig. 1

Shell well arcuated, slender, of nearly uniform diameter: white: with about 23 narrow but very prominent rings with flattened summits: apex lateral, prominent.

Length .06 inch; breadth .018 inch.

Station.—Unknown. [164] Habitat.—Panama; C.B.A.! 2 specimens were found.

recta *Adams* **Eulima** [199 : 423] Type lost

Shell long, ovate conic: chalcedonic white, with a more opaque and another less opaque spiral band at the upper part of the whorls; with two minute delicate brown spots on the labrum, and above with several similar pairs of spots at the stages of growth: smooth and shining, with a few very faint transverse striae marking stages of growth: apex very acute: spire with the axis straight, with the outlines nearly rectilin-

ear: whorls eleven, subplanulate, with the suture very indistinct; last whorl long, with the periphery very regularly rounded: aperture narrow and very acute above: labrum sharp, retreating anteriorly: columella stout, nearly straight.

Mean divergence about 21°; length .41 inch; breadth .1 inch; length of spire .285 inch.

Station.—Unknown. Habitat.—Taboga; C.B.A.! 5 specimens were collected.

[Is *Melanella* (*Melanella*) *recta* C. B. Adams; Bartsch 1917, Proceedings United States National Museum **53,** p. 311, pl. 39, fig. 3. Bartsch had C. B. Adams' material for study and figured the lectotype. The specimens were subsequently lost and none were in the Adams' collection in 1942 at the time it was transferred to the Museum of Comparative Zoology.]

reevianum *Adams* **Cerithium** [156 : 380] Plate 11, fig. 2

Shell rather long, subconic: dark reddish brown, with a yellowish white spiral line on the middle of the whorls, which is darker between the ribs; with a similar spiral line anteriorly, and another tipping the upper ends of the ribs on the lower whorls: without varices: on each whorl with about twenty-four prominent subacute, not approximate, ribs, which are less [157] regular and prominent on the last whorl, on the periphery of which they become obsolete; anteriorly with spiral raised lines, of which one near the periphery is larger: apex acute: spire with the outlines moderately curvilinear: whorls fifteen, convex, with a well impressed suture: aperture large, quadrate-orbicular, broadly effuse above, with a narrow sinus in place of the canal: labrum and labium thick, not continuous; labium reflected below.

It resembles Orbigny's figure (not Kiener's) of *C. montagnei;* Orbigny's description is too meagre to enable us to identify our species with it, and the figure represents it with flattened approximate ribs, and with several spiral white bands, most of which are wanting on our shell.

Mean divergence about 28°; length 1.55 inch; breadth .66 inch; length of spire 1.04 inch.

Station.—With *C. pulchrum,* q.v. Habitat.—Panama; C.B.A.! 190 specimens were collected with *C. pulchrum.*

[Is *Cerithidea montagnei* (d'Orbigny), Bequaert 1942, Nautilus **56,** p. 24.]

reeviana *Adams* **Ricinula** [102:326] [new name]

Buccinum pulchrum Reeve, Conch. Icon. [**3**] pl. 11, f. 80. . . Dec. 1846.

Mr. Reeve's specific name of this shell is preoccupied in *Ricinula.*

Station.—Under stones, near low water mark. Habitat.—Gallapago [Galapagos] Is.; Cuming! Reeve. Panama and Taboga; C.B.A.! 110 specimens were collected.

[Pilsbry and Lowe (1932, Proceedings Academy Natural Sciences Philadelphia **84**, p. 64) place *reeviana* C. B. Adams in the genus *Engina.* They further state that though *pulchrum* Reeve is said to be a homonym of a species of Lesson they could find no reference to it. Therefore, this name of C. B. Adams is unnecessary.]

regularis *Adams* **Calyptraea (Syphopatella)** [224:448] Plate 12, figs. 11-12

Shell with a circular margin, regularly conic: moderately thickened: snow white, tinged with brown about the apex: with very fine lightly impressed striae of growth, somewhat shining: apex subacute, subcentral: lamina folded so as to form a tube about one-third of its own width, produced to the margin so as to make one complete revolution: margin acute.

Diameter 1.27 inch: height .55 inch.

Station.—Unknown. Habitat.—Mazatlan; Lt. Green! Mus. Essex Inst.: also Gould MSS. Panama; C.B.A.! 3 specimens were obtained.

regularis *Adams* **Vitrinella** [188:412] Plate 16, fig. 2, a–b

Shell subdiscoidal: pearl white: smooth and shining, with an impressed spiral line just below the suture: apex subacute: spire convex, moderately elevated: whorls four and one-half, convex, with a distinct suture; last whorl somewhat ventricose: aperture nearly orbicular: lip thin: umbilical region deeply indented.

Mean divergence about 120°; greatest breadth .07 inch; least breadth .06 inch; height .05 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 1 specimen was found in the calcareous sand.

[Pilsbry and Olsson (1952, Proceedings Academy Natural Sciences Philadelphia **104**, p. 58) placed this species provisionally in the genus *Solariorbis.* They figured the holotype of the species in the Proceedings 1945, **97**, pl. 28, fig. 2, a–b.]

rostrata *Adams* **Crepidula** [235 : 459] Plate 11, figs. 9–10

Shell very convex, irregularly elliptic: livid brown, sometimes with pale ill-defined spots: irregularly somewhat corrugated both radiately and concentrically: apex very acute and prominent, rostriform, very distant from but extending beyond the posterior margin, slightly directed to the right: septum far within the margin, planulate, usually very oblique to the plane of the aperture: margin thin, irregular.

Length .48 inch; breadth .3 inch; height .29 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 5 specimens were obtained in different stages of growth.

rostratus *Adams* **Donax** [278 : 502] Type lost

Shell elongated, inequilateral, rostrated anteriorly; ventral edge excurved along the middle, anteriorly rectilinear; anterior margin very oblique, nearly rectilinear, forming with the ventral edge a rostriform extremity: purple and dingy yellowish brown, more or less in ill defined zones; interior with the same colors not in zones: posteriorly and near the beaks smooth and shining; with rather distant very fine radiating striae over the middle of the disc; striae coarser anteriorly, more distant next behind and more crowded before the umbonial angle; the latter are slightly rugose: beaks small, prominent: umbones prominent; with a very sharp angle separating a concave anterior surface; within slightly radiately striated; with the anterior and ventral margins crenulated, more coarsely and deeply at the anterior extremity: with a prominent lateral tooth on each side of the cardinal teeth. It somewhat resembles *D. cardinatus* Hanley.

Length 1.6 inch; height 1.15 inch; breadth .8 inch.

[279] Station.—Unknown. Habitat.—Mazatlan; Lt. Green! Gould MSS. Santa Barbara; Col. Jewett! Gould MSS. Panama; C.B.A.! 1 valve only was obtained.

rubra *Adams* **Corbula** [299 : 523] Plate 17, figs. 8–9

Shell subovate, moderately inequivalve and inequilateral, posteriorly acuminate, with the ventral margin arcuate, anteriorly rounded: rufous, with a short white ray on the anterior side of the umbo, and a dark red spot before it: with fine concentric striae, decussated by radiating microscopic striae:

beaks not very prominent: umbones prominent, somewhat angulated on both sides near the beaks: teeth small. Our unique specimen has a broad flexure a little behind the middle; but this may be an accidental growth.

Length .31 inch; height .19 inch; breadth .14 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! Only 1 specimen was obtained.

rudis *Adams* **Solen** [300 : 524] Plate 19, figs. 1–2

Shell solid, straight or slightly recurved; with the posterior extremity abruptly truncated nearly perpendicularly; anteriorly with very thick rounded margins: white beneath a brown deciduous epidermis, which is produced much beyond the margins: with only indistinct striae of growth on the shell; with some radiating lines on the epidermis: beaks inconspicu- [301] ous, at one seventh of the length from the anterior extremity: ligament large, with stout nymphaeal callosities: teeth large in old shells.

Length 5.8 inches; height 1.3 inch; breadth 1 inch.

Station.—In coarse sand, among stones, near low water mark. Habitat.—Panama; C.B.A.! 55 specimens were collected on the reef. It is an edible species, and many of our specimens were obtained from the natives, who were digging them for food.

rutilus *Adams* **Turbo** [196 : 420] Plate 13, fig. 10

Shell trochiform, well elevated: bright red, with pale, ill defined transverse streaks: with very numerous small very oblique subnodulous ridges on the spire, which are traversed by two or three small spiral grooves on the lower half of the whorls; anteriorly with six to eight narrow deep inequidistant spiral grooves: spire with the outlines nearly rectilinear: apex obtuse (?); whorls (seven?) * planulate, with a distinct suture; last whorl with the periphery angular, subplanulate anteriorly: labrum much advanced above: columellar lip very much dilated and thickened, appressed: umbilicus wanting.

Mean divergence about 70°; length 2.5 inches; greatest breadth 3 inches; least breadth 2.7 inches.

* Our unique specimen is imperfect.

Station.—Unknown. Habitat.—Panama; C.B.A.! We obtained 1 specimen on the reef. Fragments of a few others were seen.

[Is *Astraea gibberosa* Dillwyn, having the spiral cords on the flat base so characteristic of that species.]

saxicola *Adams* **Litiopa** (?) [183 : 407] Plate 10, fig. 7

Shell long ovate conic: pale horn color, subtransparent: surface covered with deep regular crowded spiral striae; apex acute: spire with the outlines slightly curvilinear: whorls five, convex, with a well impressed suture; last whorl rather ventricose: aperture broadly ovate, acute above: labrum thin: labium with a distinct deposit: umbilicus wanting.

Mean divergence about 45°; length .14 inch; breadth .075 inch; length of spire .07 inch.

The generic character of this species is doubtful. The shell has the appearance of a *Litiopa,* but the station is that of *Cingula,* to which Dr. Gould is inclined to refer it. We leave it doubtful, until the soft parts shall have been examined.

Station.—Under stones at low water mark. Habitat.—Panama; C.B.A.! 7 specimens were found on the reef.

scalariformis *Adams* **Rissoa** [180 : 404] Plate 12, fig. 3

Shell elongate, ovate conic: dingy white: with, on each whorl, eleven stout prominent acute compressed ribs, which are continuous on the successive whorls; covered with microscopic spiral striae, which ascend the sides of the ribs but are obsolete on their summits: apex acute: spire with the outlines moderately curved: whorls eight, convex, with a well impressed suture: aperture obliquely ovate, effuse above and below: labrum moderately thickened, well excurved and produced along the middle.

Mean divergence about 33°; length .13 inch; breadth .05 inch; length of spire .08 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 1 specimen was found in the sand.

[Is the young of *Rissoina firmata* C. B. Adams; Bartsch 1915, Proceedings United States National Museum **49**, p. 38, pl. 32, fig. 4.]

seminuda *Adams* **Vitrinella** [188:412] Plate 15, fig. 3, a–b

Shell discoidal: white: above with excessively minute striae of growth; beneath covered with spiral striae: apex obtuse: spire scarcely elevated, convex: whorls three, moderately convex, with a distinct suture; last whorl with the periphery subangular: aperture orbicular, very oblique: lip thin: umbilicus narrow, deep.

[189] Mean divergence about 170°; greatest breadth .062 inch; least breadth .053 inch; height .32 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 1 specimen was found in the calcareous sand.

[Is *Solariorbus seminuda* C. B. Adams; Pilsbry and Olsson 1952, Proceedings Academy Natural Sciences Philadelphia **104**, p. 51. The type of this species was figured by Pilsbry and Olsson in the Proceedings 1947, **97**, pl. 27, fig. 3, a–b.]

senior *Adams* **Triton vestitus** ? var. [118:342] Type lost

We found also near Panama a shell which differs but little from the preceding [*Triton vestitus* Hinds]. It is not so deeply colored, and is lengthened by the addition of another whorl, and consequently it has an additional varix. The sculpture of the lower whorls is less prominent; and the shell is distorted.

siliqua *Adams* **Tellina** [284:508] Plate 19, figs. 15–16

Shell elongate, subelliptic, very thin, very convex, very inequilateral; ventral margin nearly straight; anterior margin well rounded; anterior dorsal margin slightly excurved, moderately sloping; posterior dorsal margin straight or concave, sloping to a small subtruncate posterior extremity; flexure great: pure white: with excessively minute concentric striae: beaks acute: ligament small: cardinal teeth small; lateral teeth wanting. Dr. Gould suggested the very appropriate name which we have adopted.

Length .7 inch; height .4 inch; breadth .3 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 1 specimen was found.

similis *Adams* **Arca** [261:485] Plate 20, figs. 1–2

Shell ellipsoidal, very inequilateral, slightly auriculate: inferior margin subrectilinaer; anterior and posterior margins well [262] rounded: dorsal margin somewhat oblique: white:

with an epidermis, which is greenish brown on the young shell, and brownish black on an old shell: with forty to forty-four ribs, which are larger and more sharply angled posteriorly: umbones prominent, flattened, not angulated: area of the ligament narrow, depressed: margins of the interior pectinated by the ribs: teeth small. It resembles *A. tuberculosa* Sowb.

Length 2.2 inches; height 1.3 inch; breadth 1.1 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 10 specimens were obtained.

similis *Adams* **Chemnitzia** [168 : 392] Plate 10, fig. 9

Shell long, conic: white: with, on each whorl, about twenty-six rather obtuse ribs, which terminate abruptly on the periphery of the last whorl: spire with the outlines nearly rectili- [169] near: whorls eleven, convex, with a rather deep suture: last whorl rather long, with the periphery well rounded: aperture subovate: labrum thin: columella straight: umbilicus wanting.

Mean divergence about 17°; length .17 inch; breadth .045 inch; length of spire .13 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 2 specimens were found in the sand.

[Is *Turbonilla* (*Chemnitzia*) *paramoea* Dall and Bartsch (1909, Bulletin United States National Museum no. 68, p. 37, pl. 2, figs. 4–4a) new name for *Chemnitzia similis* C. B. Adams, non Forbes 1848; non d'Orbigny 1850.]

simulans *Adams* **Tellina** [284 : 508] Plate 18, figs. 5–6

Tellina punicea (pars) Hanley in Sowb. Thes. Conch. **1**, p. 239, 1846.

Shell subovate, solid, moderately convex, nearly inequilateral; ventral margin slightly excurved; anterior margin well rounded; anterior dorsal margin slightly excurved; posterior dorsal margin nearly straight, sloping; posterior extremity obliquely truncated; flexure slight: white, more or less deeply tinged with rose color except near the margin and around the [285] pure white beaks; within of a very deep red: shining; with deep crowded regular concentric sulci, which are of equal depth at both extremities: beaks prominent: ligament short, conspicuous: with a long posterior dorsal area well defined by an angle: lateral teeth nearly obsolete. The difference between this shell and *T. punicea* is slight: its furrows are deeper and

are continued over the flexure without change of depth; the interspaces are less flattened, and the lateral teeth are nearly obsolete.

Length 1.13 inch; height .7 inch; breadth .3 inch.

Station.—In sandy mud at 10 fathoms: Cuming! Hanley. Habitat.—Xipixapi; Cuming! Hanley. Panama; C.B.A.! 1 valve was found.

solitaria *Adams* **Eulima** [199 : 423] Type lost

Shell long, ovate conic: chalcedonic white, with a brownish tinge above the middle of the spire: smooth and shining: apex acute: spire with the axis nearly straight, with the outlines nearly rectilinear: whorls eleven, planulate, with the suture very indistinct: last whorl with the periphery very regularly rounded: aperture ovate, acute above: labrum sharp, much advanced along the middle into an elegantly curved edge: columella stout, slightly curved. This may be a *Stylifer*.

Mean divergence about 23°; length .19 inch; breadth .055 inch; length of spire .14 inch.

Station.—On Holothuriae. The small species of Holothuria, which is very common at Panama and at Taboga, did not furnish any specimens. A larger species, which is more rare, afforded one shell. Habitat.—Taboga; C.B.A.!

[Is *Melanella* (*Melanella*) *solitaria* C. B. Adams; Bartsch 1917, Proceedings United States National Museum **53**, p. 308, pl. 35, fig. 4. Bartsch had C. B. Adams' specimens for study and figured the holotype. The specimen was subsequently lost and was not in the Adams collection in 1942 at the time it was transferred to the Museum of Comparative Zoology.]

solitaria *Adams* **Mitra** [44 : 268] Plate 5, fig. 1

Shell rather slender, fusiform: of a very deep blackish brown, less deep in the aperture, and quite pale on the plaits: with very numerous small transverse ribs, which are obsolete anteriorly, and which are granulated by revolving striae, that are obsolete in the interspaces posteriorly, and are strongly developed anteriorly, with microscopic incremental striae; apex acute: whorls ten, moderately convex, slightly shouldered above, with a moderately impressed suture: aperture long, with a rather short canal: labrum thick, with numerous sharp plaits inside, with a sinus near the posterior end: columella with four plaits.

Length .68 inch; breadth, .23 inch; length of aperture, .34 inch.

Station.—Under stones near low water mark we found this elegant and rare shell. Habitat.—Panama; C.B.A.! We found a single specimen on the reef.

stimpsonianum *Adams* **Buccinum** [72 : 296] Plate 7, fig. 1

Shell long ovate-conic: rather pale slate color, more or less white above, with the revolving ridges brownish red or white where they cross the ribs, white in the upper half of the labrum, often with a broad white spiral band on the middle of the whorls: on each whorl with seven or eight stout transverse ridges, which are less prominent on the back of the last whorl; with several spiral linear ridges, of which four are visible on the penult whorl, which are obsolete between the transverse ridges, and are more numerous and smaller anteriorly; covered [73] with five crowded spiral striae: apex acute: spire conic: whorls eight, scarcely convex: aperture ovate: labrum much thickened, with a few plaits inside: columellar lip irregularly plaited: with a short well notched canal.

Mean divergence about 38°; length .72 inch; breadth .32 inch.

I take pleasure in dedicating this species to William Stimpson, Esq., whose researches on the Mollusca of this country will furnish a most valuable contribution to Malacology.

Station.—Under stones, near low water mark. Habitat.—Panama; C.B.A.! We obtained 19 specimens, of which a few only were alive.

striata *Adams* **Nassa** [65 : 289] Plate 6, fig. 6

Shell long ovate conic: white about the aperture, otherwise dingy white more or less tinged with yellowish brown: with, on each whorl, twelve or thirteen small ribs, and many coarse spiral striae: spire with the outlines a little curvilinear: apex acute: whorls eight, convex, with a well impressed su- [66] ture; last whorl spirally canaliculate on the left side: aperture subelliptical: labrum rather sharp, thickened by a broad varix, coarsely grooved within: labium well thickened, not appressed, with two small wrinkles anteriorly: notch deep.

It resembles *N. versicolor* (v. infrà) var. *striatula:* but besides

being more coarsely striated and minutely ribbed, the whorls are much more convex.

Mean divergence about 48°; length .58 inch; breadth .31 inch; length of spire .33 inch.

Station.—Unknown. Habitat.—Taboga; C.B.A.! 2 specimens were obtained.

[Is in the genus *Nassarius*.]

striatula *Adams* **Nassa versicolor** var. [66 : 290] Plate 6, fig. 7

See under *Nassa versicolor* Adams.

[Is *Nassarius versicolor* C.B.Adams; Desmond 1952, Pacific Science **6**, p. 310.]

striosa *Adams* **Chemnitzia** [169 : 393] Plate 11, fig. 4

Shell long, conic: yellowish brown: with, on each whorl, about forty very minute slender ribs, which gradually become obsolete on the periphery of the last whorl; covered with distinct spiral striae, of which one a little below the suture and also those which are anterior are larger: spire with the outlines nearly rectilinear: whorls ten, slightly convex, with a well impressed suture: aperture ovate, acute above: labrum thin: columella a little twisted: umbilicus wanting.

Mean divergence about 20°; length .21 inch; breadth .06 inch; length of spire .16 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 1 specimen was found in the sand.

[Is *Turbonilla* (*Pyrgiscus*) *striosa* C. B. Adams; Dall and Bartsch 1909, Bulletin United States National Museum no. 68, p. 83, pl. 7, figs. 8–8a.]

striosa *Adams* **Pleurotoma** [147 : 371] Plate 8, fig. 7

Shell slender: dingy white, with a more or less distinct brown spiral stripe on the last whorl issuing from the upper part of the aperture: with indistinct crowded spiral striae, with ten or twelve very slender ribs on each whorl: apex acute: [148] spire with the outlines nearly rectilinear: whorls eight, convex with a moderately impressed suture: aperture rather narrow: labrum rather sharp, thickened behind the edge by a very stout rib: canal rather wide, very short.

Mean divergence about 33°; length .3 inch; breadth .1 inch; length of spire .2 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 13 specimens were found in the calcareous sand on the shore.

striosum *Adams* **Amphidesma** [291:515] Plate 18, figs. 1–2

Shell elliptical, slightly flexuous, inequilateral; with the posterior dorsal margin slightly excurved, with the anterior dorsal margin concave, otherwise with the margins well rounded: pale yellowish brown: with numerous fine raised concentric lines, and closely crowded radiating striae, which are mostly microscopic: beaks small, approximate: umbones convex: corselet and lunule not well defined.

Length .78 inch; height .71 inch; breadth .33 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 1 specimen was found.

tabogensis *Adams* **Arca (Byssoarca)** [262:486] Plate 19, figs. 7–8

Shell not much elongated, not very inequilateral; inferior margin nearly straight, a little gaping for the passage of the byssus; posterior margin oblique, rectilinear or mode- [263] rately excurved; anterior margin well rounded: dingy white, with blackish brown epidermis: with numerous very prominent but very narrow linear ribs, which are often alternately large and small, and of which a few at each extremity are a little stouter and are subnodulous; with a few indistinct concentric lines: umbones prominent, flattened: area of the ligament very narrow, anteriorly widened abruptly: margins of the interior finely and irregularly crenulated: middle teeth very small. The epidermis is between pilose and lamellar, with the points long posteriorly.

Length 1.3 inch; height .85 inch; breadth .65 inch.

Station.—Under stones near low water mark. Habitat.—Taboga and Panama; C.B.A.! 60 specimens were collected, mostly at Taboga.

tabogensis *Adams* **Auricula** [211:435] Plate 13, fig. 6

Shell obovate: very dark brownish red, more or less rufous on the columella, usually white on the plaits and callus within; smooth and shining, with some fine spiral striae on the upper whorls: apex acute: spire with the outlines very curvilinear:

whorls ten, imbricately appressed, with a distinct suture: last whorl large: aperture long and narrow, in the right side mostly covered by a transversely ridged callus: with three plaits on the left side, of which the upper one is a little larger, and the two lower are separated by a sinus.

Mean divergence about 100°; length .59 inch; breadth .36 inch; length of spire .15 inch.

Two specimens of *A. fusca* Phil., which we have received from M. Petit, are more angular in the upper part of the whorls, and have the callus within the labrum more finely and closely ridged. *A. fusca,* as figured by Küster, more robust and less pyriform than our shell. According to M. Petit's label, *A. fusca* occurs at the Marquesas, and Küster mentions the Sandwich Islands as its habitat. In outline our shell resembles *A. pyriformis* Petit (West Columbia, Cuming!), but within the aperture there is no resemblance.

Station.—On and under stones and rocks at high water mark. Habitat.—Taboga and Panama; C.B.A.! 800 specimens were collected.

[Is *Melampus tabogensis* C. B. Adams; Hertlein and Strong 1955, Bulletin American Museum Natural History **107,** p. 209.]

tenuis *Adams* **Anomia** [245 : 469] Plate 18, fig. 13

Shell orbicular: flat, extremely thin: white, subtransparent, pearly: externally somewhat uneven: upper scar large, rounded, with the lower side arcuated: two lower scars small, circular, equal: anterior one nearly entering the arcuation of the upper scar; posterior one near the other, with the upper margin as high as the centre of the other.

Diameter about .85 inch.

Station.—Near low water mark. Habitat.—Panama; C.B.A.! 3 specimens were obtained.

terebellum *Adams* **Cingula** (?) [182 : 406] Plate 10, fig. 8

Shell subcylindric: white: with four very prominent compressed acute spiral keels, of which two are seen on the spire: apex subacute: spire with the outlines moderately curvilinear: whorls six, slightly convex, with an indistinct suture; last whorl small: aperture small, ovate, acute above: labrum thin: labium indistinct: umbilicus wanting.

Mean divergence about 28°; length .08 inch; breadth .04 inch; length of spire .055 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 1 specimen was found in the calcareous sand.

[Is *Odostomia* (*Miralda*) *terebellum* C.B.Adams; Dall and Bartsch 1909, Bulletin United States National Museum **68,** p. 177, pl. 19, fig. 4.]

tessellata *Adams* **Columbella** [99 : 323] Plate 7, fig. 4

Shell rather long ovate: dark sea-green, tinged with black or brown, fading to a brownish red; more or less tesselated with nearly quadrangular white spots: with about fifteen stout approximate ribs, which lean forward, and which are obsolete on the back of the last whorl; with all the surface ridged by strongly impressed revolving striae: apex acute: spire conic: whorls eight, scarcely convex, with a distinct suture: aperture rather long: labrum variciform, thick behind, a little sinuate posteriorly, with three or four granules inside: columellar lip slightly granulous.

Mean divergence about 48°; length .225 inch; breadth .105 inch; length of spire .13 inch.

This species resembles the small variety of *C. nigricans.* It also resembles *C. lentiginosa* Hinds (Zool. Sulph. Moll. pl. 10, f. 21, 22), in coloring and sculpture; but the latter is represented as being much wider and as having a short spire.

Station.—This species was found under stones, near low water mark. Habitat.—Panama; C.B.A.! We collected 27 specimens.

[Is *Columbella guatemalensis* Reeve; Tryon 1883, Manual of Conchology **5,** p. 242; Dall 1909, Proceedings United States National Museum **37,** p. 282.]

tortuosum *Adams* **Amphidesma** [291 : 515]
Plate 17, figs. 10–11

Shell compressed, subequilateral, triangular above, orbicular below, the slightly excurved posterior dorsal margin and the slightly concave anterior dorsal margin meeting at an angle of about 125°, and the rest of the margins being well rounded; posterior side very flexuous, with a broad deep groove on the left valve and a corresponding ridge on the right valve: dingy white: with numerous concentric ridges, which are crossed by radiating striae that are partly microscopic: beaks very

minute, approximate: left umbo flat, right one convex: corselet and lunule long and narrow, deeply concave.

Length 1.25 inch; height 1.1 inch; breadth .35 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 1 specimen was obtained.

[Is in the genus *Semele.*]

tricarinata *Adams* **Vitrinella** [189 : 413] Plate 16, fig. 3, a–b

Shell subdiscoidal: white: with three prominent spiral keels, one on the periphery of the last whorl, and one on each side of it, of which the upper one is visible on the spire: with some irregular transverse striae: spirally striate within the umbilicus: apex subacute: spire convex, a little elevated: whorls three, depresssd above and compressed below the keel, with a distinct suture: aperture oblique, orbicular, angulated by the keels: umbilicus wide and deep.

Mean divergence about 150°; greatest breadth .072 inch; least breadth .065 inch; height .035 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 1 specimen was found in the calcareous sand.

[Is *Cyclostremiscus tricarinatus* C. B. Adams; Pilsbry and Olsson, 1945, Proceedings Academy Natural Sciences Philadelphia **97**, p. 271, pl. 28, fig. 3, a–b.]

trigonalis *Adams* **Potamomya** [296:520] Plate 18, figs. 3–4

Shell solid, triangular, moderately inequivalve, subequilateral; upper posterior margin moderately excurved, forming an angle with the slightly excurved ventral margin; anteriorly with the dorsal margin abruptly and regularly rounded into the ventral margin: white beneath a pale brown epidermis: with fine striae of growth; with a sharp umbonial angle defining a posterior area: beaks large and prominent: umbones prominent, somewhat compressed: teeth large and robust; tooth of the left valve with a medial ridge.

Length .95 inch; height .8 inch; breadth .56 inch.

Station.—With *P. aequalis,* q.v. Habitat.—Panama; C.B.A.! 2 specimens were obtained.

trilineata *Adams* **Auricula** [212 : 436] Plate 13, fig. 7

Shell obovate: dark brownish red, with three revolving distant white lines on the last whorl, of which the anterior line is not so well defined: rufous on the columella: with irregular

striae of growth: apex obtuse? spire very small, with the outlines curvilinear: whorls —,* very narrow, imbricately appressed, with the suture distinct: last whorl very large, convolate: aperture very long, narrow: labrum not sharp, with a deposit over the whole visible interior, which is transversely plaited: at the end of the columella with a twisted plait, separated by a sinus from a large transverse plait, above which are four small approximate transverse plaits.

Mean divergence about 135°; length .71 inch; breadth .43 inch; length of spire .05 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! Only 1 specimen was found.

*In our unique specimen the suture of the upper whorls is obliterated by erosion. Probably the number of whorls is six or seven.

turrita *Adams* **Chemnitzia** [169 : 393] Plate 8, fig. 13

Shell subcylindric in the lower whorls, conic in the upper whorls: white: with, on each whorl, about eighteen sharp compressed slender ribs, which are less prominent on the last whorl, and terminate abruptly at its periphery; with an impressed spiral line next below the upper margin of the whorls, another at the periphery of the last whorl, and an anterior spiral groove: spire with the outlines curvilinear above the middle, otherwise nearly rectilinear: whorls ten, acutely shouldered, slightly con- [170] vex, with a well impressed suture; last whorl angular at the periphery: aperture subovate: labrum thin: columella straight: umbilicus wanting.

Mean divergence about 23°; length .185 inch; breadth .055 inch; length of spire .14 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 3 specimens were found in the sand.

[Is *Turbonilla* (*Asmunda*) *turrita* C. B. Adams; Dall and Bartsch 1909, Bulletin United States National Museum **68**, p. 130, pl. 12, figs. 14–14a.]

turrita *Adams* **Cingula** (?) [182 : 406] Plate 20, fig. 12

Shell conic, elongate: white: with numerous prominent compressed transverse ribs, which terminate a little above the suture, where they are crossed by a spiral raised line; anteriorly with two or three spiral ridges: apex acute: spire with the outlines nearly rectilinear: whorls six, above abruptly should-

ered, planulate, with the suture in a broad groove, which is continued along the periphery of the last whorl: aperture small, ovate, acute above, very slightly effuse: labrum thin: umbilical region with a very minute indentation.

Mean divergence about 30°; length .08 inch; breadth .033 inch; length of spire .024 inch.

Station.—Unknown. [183] Habitat.—Panama; C.B.A.! 1 specimen was found in the sand.

[Is *Odostomia notabilis* C. B. Adams. See notes under *Rissoa notabilis* C. B. Adams. Dall and Bartsch had Adams' material for study at the time they wrote their "Monograph of the West American Pyramidellid Mollusks" (1909, Bulletin United States National Museum no. 68) and they figured the holotype of *Cingula turrita* C. B. Adams. The specimen was subsequently lost and was not in the Adams collection at the time it was transferred to the Museum of Comparative Zoology. Dr. Rehder has kindly loaned the original drawing made for Dall and Bartsch's paper for illustration here.]

validum *Adams* **Cerithium** [157 : 381] Plate 11, fig. 3

Shell long, conic: dark reddish brown, with a pale spiral line along the middle of the whorls: rufous on the varices, and white in the aperture: sometimes whitish on the varices, the spiral ridges, and the last whorl: with, on each whorl, about twenty arcuate ridges, which are prominent and rather narrow but not compressed, and which terminate abruptly at the periphery of the last whorl: with stout varices about 270° distant: with six spiral ridges, of which two next below the suture are small and approximate, and are sometimes replaced by a single ridge: and of which one is partly concealed in the suture: with intermediate minute spiral striae: anteriorly covered with slightly wrinkled spiral ridges: apex acute: spire with the outlines moderately curvilinear: whorls twelve, convex, with a deep suture: last whorl subangular at the periphery, very short: aperture [158] sub-quadrate, effuse below, sub-effuse above: labrum produced very far in the lower half, in old shells excessively thickened.

Mean divergence about 32°; length 1.6 inch; breadth .75 inch; length of spire 1.15 inch.

This species must closely resemble *C. varicosum* Sowb., and *C. varicosum* Kiener, which are probably distinct from each other. *C. Hegeswichii* Phil.[1] is also similar to our shell. (It is to

[1] [A misspelling for *hegewischii* Phil.]

be regretted that Dr. Philippi has not stated which side of Mexico his species inhabits.) Sowerby's shell may be ours. It appears like a dwarfed variety. Orbigny considers it as the young of the shell which he had from Guayaquil, but speaks of a circular umbilicus.

Station.—With *C. pulchrum.* Habitat.—Panama; E. Jewett! Gould MSS. Panama; C.B.A.! 250 specimens were collected with *C. pulchrum.*

[Is *Cerithidea hegewischii valida* C. B. Adams. This is a large form of *hegewischii* which intergrades with the typical form. Zilch (1954, p. 82) considered it to be synonymous with *hegewischii* Philippi. It is certainly much larger than specimens of the typical form which we have in the collection. Bequaert (1942, p. 25) not having seen the types of Adams, considered *valida* C. B. Adams and *pulchra* C. B. Adams to be synonymous and his remarks should be applied to the name *valida* rather than *pulchra.* Hertlein and Strong (1955, p. 270) considered *valida* as a good species. See also notes under *Cerithium pulchrum* C. B. Adams.]

valvatoides *Adams* **Vitrinella** [189 : 413] Plate 15, fig. 1, a–b

Shell discoidal: whitish, sub-transparent: last whorl with a prominent keel above, which is visible on the spire, with another prominent keel beneath, and a third, less developed, around the umbilicus: spire concave: whorls three, concave above the keel, with a distinct suture: last whorl subangular at the periphery: umbilicus wide and deep.

Greatest breadth .1 inch; least breadth .075 inch; height .04 inch.

Station.—Unknown. [190] Habitat.—Panama; C.B.A.! 3 specimens were found in the calcareous sand.

[Is *Cyclostremiscus valvatoides* C. B. Adams; Pilsbry and Olsson 1945, Proceedings Academy Natural Sciences Philadelphia **97,** p. 272, pl. 27, fig. 1, a–b.]

variabilis *Adams* **Ovula** [31 : 255] Plate 6, fig. 2

Shell very slender: usually white, with a slight tinge of rufous, with the lip opaque white; sometimes of a rich red purple: smooth: aperture not very narrow, a little widened anteriorly, moderately produced, effuse, and slightly inflected posteriorly; obliquely emarginate anteriorly: lip well thickened: columella with a longitudinal keel, acute and obliquely produced anteriorly, posteriorly somewhat biplicate.

Length .54 inch; breadth .15 inch.

This shell resembles *O. inflexa,* Sowb., but is more slender. Perhaps on comparison of specimens, they may be proved identical. *O. uniplicata,* Sowb., is larger, with a wider aperture.

[32] Station.—At the low water mark of the spring tides. The light colored specimens were found on a cream-colored species of Gorgonia, and the purple specimens on a Gorgonia of the same color. Of 56 specimens, four are purple, and 14 are mature, and 42 immature.

Habitat.—San Juan, Lower Calif.—Lt. Green! Gould Mss. Purple shells. Santa Barbara.—E. Jewett! Gould Mss. Pale, or moderately tinged with purple. Panama.—C.B.A.!

The 56 specimens were all taken on the reef at Panama. Mr. Cuming found one specimen of *O. inflexum* in the Gulf of Dulce.

ventricosum *Adams* **Amphidesma** [292 : 516]

Plate 19, figs. 9–10

Shell suborbicular, subequilateral, ventricose, flexuous; with the anterior and posterior dorsal margins nearly straight; with the margins otherwise well rounded: dingy white, brownish in ill-defined zones: with unequal striae of growth; densely covered with radiating microscopic striae: beaks small, approximate: umbones very convex: corselet and lunule not very well defined.

Length .7 inch; height .62 inch; breadth .36 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! A single valve only was found.

[Is in the genus *Semele.*]

versicolor *Adams* **Nassa** [66 : 290] Plate 6, fig. 8

Shell long ovate conic: pale yellowish brown, or nearly white, with a darker sutural line, or blackish brown: sometimes the ends or the summits of the ribs are whiter than the interspaces; sometimes the sutural fascia covers the anterior part of the last whorl: with, on each whorl, nine or ten narrow very prominent ribs; with very minute spiral striae, which are nearly obsolete on the middle of the whorls; spire with the outlines nearly or quite rectilinear: apex acute: whorls eight, slightly convex, with a well impressed suture; last whorl spirally canaliculate anteriorly: aperture subelliptical: labrum

subacute, thickened with a stout varix: labium thickened, not appressed, finely wrinkled: notch deep. Var. *striatula* is covered with very distinct striae.

Mean divergence about 45°; length .6 inch; breadth .33 inch; length of spire .35 inch.

N. ambigua, the Caribbean analogue, is also an extremely variable species.

Station.—Unknown. [67] Habitat.—Taboga; C.B.A.! More than 500 specimens were collected, all occupied by hermit crabs.

[Is *Nassarius versicolor* C. B. Adams; Desmond 1952, Pacific Science **6,** p. 310.]

vicina *Adams* **Tellina** [285 : 509] Plate 18, figs. 11–12

Shell very short, subovate, solid, convex, subequilateral; ventral margin well excurved, sometimes slightly incurved near the flexure; anterior margin broadly rounded; anterior and posterior dorsal margins nearly straight, sloping; posterior extremity subtruncated; flexure moderate: dingy white, sometimes tinged with yellowish brown; sometimes deep red, with [286] a tinge of blue or grey; some whitish specimens are ornamented with bluish purple zigzag lines on the umbones, or with a short ray of the same color before the beaks: with deep unequal crowded concentric striae: beaks prominent: ligament short, conspicuous: lateral teeth rather small. This species is closely allied to *T. bimaculata,* and has similar varieties of coloring, but is larger, higher, and has coarser striae.

Length .95 inch; height .78 inch; breadth .4 inch.

Station.—Unknown. Habitat.—Panama; C.B.A.! 10 specimens were collected.

wilsoni *Adams* **Nassa** [67 : 291] Plate 5, fig. 2

Shell ovate conic, ventricose: blackish brown, with a dingy white spiral band, at or a little above the suture: with sixteen to twenty small ribs, some of the last of which are obsolete on the convexity of the whorl, and of which one next behind the varix is larger; with many spiral raised lines, which are smaller on the summits of the ribs, and which are nearly obsolete in the region where the ribs are obsolete: spire with the outlines curvilinear: apex acute: whorls seven, slightly con-

vex, with a distinct suture: last whorl ventricose, anteriorly with a small spiral canal: aperture suborbicular: labrum subacute, much thickened within and without, with a few sharp ridges within: labium thickened, not appressed: notch deep.

Mean divergence about 58°; length .32 inch; breadth .19 inch; length of spire .18 inch.

This pretty little species is named in honor of Dr. Thomas B. Wilson, of Philadelphia, the munificent patron and successful cultivator of Natural History.

Station.—Unknown. Habitat.—Panama; C.B.A.! 5 specimens were obtained.

* * * *

The following is a list of the various species described by C. B. Adams. They are grouped under the genera to which they were originally assigned. Subsequent generic changes for a few of the species are indicated in the main body of this report.

Adeorbis: abjecta.

Amphidesma: bicolor; proximum; striosum; tortuosum; ventricosum.

Anatina: alta.

Anomia: tenuis.

Arca: pholadiformis; similis; tabogensis.

Auricula: concinna; infrequens; panamensis; tabogensis; trilineata.

Buccinum: lugubre; stimpsonianum.

Bulla: infrequens; luticola.

Cancellaria: affinis; pygmaea.

Calyptraea: aberrans; aspersa; planulata; regularis.

Cerithium: assimilatum; bimarginatum; famelicum; neglectum; pauperculum; pulchrum; reevianum; validum.

Chama: buddiana.

Chemnitzia: aculeus; acuminata; affinis; clathratula; communis; gracilior; major; marginata; panamensis; similis; striosa; turrita.

Cingula: inconspicua; paupercula; terebellum; turrita.

Coecum: diminutum; eburneum; firmatum; laeve; laqueatum; minus; monstrosum; parvum; pygmaeum.

Columbella: conspicua; diminuta; gracilis; moesta; pulchrior; tesselata.

Corbula: rubra.

Crepidula: cerithicola; nivea; osculans; rostrata.

Cyrena: maritima.

Cytherea: consanguinea.

Donax: rostratus.

Eulima: iota; recta; solitaria.

Fissurella: alta.

Fusus: bellus.

Gouldia: pacifica.

Haliotis: ponderosa.

Litiopa: saxicola.

Littorina: angiostoma; atrata; dubiosa; excavata; foveata; megasoma.

Mangelia: neglecta.

Marginella: minor.

Mitra: solitaria.

Nassa: canescens; collaria; corpulenta; gemmulosa; glauca; panamensis; proxima; striata; striatula; versicolor; wilsoni.

Oliva: inconspicua.

Ovula: neglecta; variabilis.

Pandora: cornuta.

Pedipes. angulata.

Petricola: cognata.

Pleurotoma: atrior; concinna; exigua; gemmulosa; grandimaculata; striosa.

Potamomya: aequalis; inflata; trigonalis.

Purpura: foveolata; osculans.

Pyramidella: conica.

Ricinula: jugosa.

Rissoa: clandestina; firmata; fortis; inconspicua; infrequens; janus; notabilis; scalariformis.

Solecurtus: affinis.

Solen: rudis.

Stomatella: inflata.

Tellina: cognata; concinna; puella; siliqua; simulans; vicina.

Triphoris: alternatus; inconspicuus; infrequens.

Triton: fusoides; senior.

Trochus: coronulatus; leanus.

Truncatella: bairdiana; dubiosa.

Turbo; phasianella; rutilus.

Vitrinella; concinna; exigua; janus; minuta; modesta; panamensis; parva; perparva; regularis; seminuda; tricarinata; valvatoides.

Plate 5

Fig. 1. *Mitra solitaria* Adams. Holotype MCZ 186351 (4x).
Fig. 2. *Nassa wilsoni* Adams. Lectotype MCZ 186372 (7.2x).
Fig. 3. *Nassa corpulenta* Adams. Lectotype MCZ 186352 (2.3x).
Fig. 4. *Nassa collaria* Adams. Lectotype MCZ 186354 (5.5x).
Fig. 5. *Nassa gemmulosa* Adams. Holotype MCZ 186392 (8x).
Fig. 6. *Nassa glauca* Adams. Lectotype MCZ 186386 (4x).
Fig. 7. *Buccinium lugubre* Adams. Lectotype MCZ 186388 (3.9x).
Fig. 8. *Nassa canescens* Adams. Holotype MCZ 186350 (2.3x).
Fig. 9. *Nassa panamensis* Adams. Lectotype MCZ 186283 (3.9x).

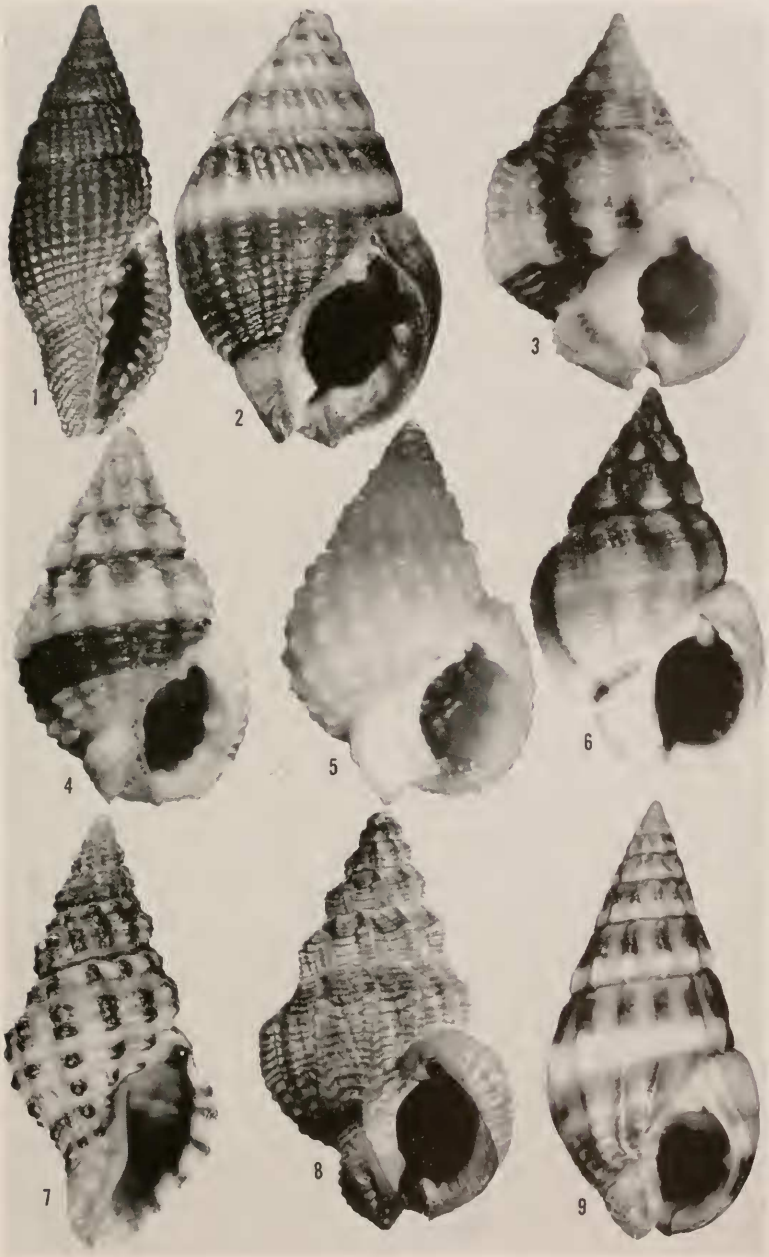

Plate 5

Plate 6

Fig. 1. *Ovula neglecta* Adams. Lectotype MCZ 186358 (7.8x).
Fig. 2. *Ovula variabilis* Adams. Lectotype MCZ 186360 (4.9x).
Fig. 3. *Marginella minor* Adams. Lectotype MCZ 186356 (22.6x).
Fig. 4. *Oliva inconspicua* Adams. Lectotype MCZ 186362 (13.3x).
Fig. 5. *Nassa proxima* Adams. Holotype MCZ 186417 (5.5x).
Fig. 6. *Nassa striata* Adams. Lectotype MCZ 186380 (3.7x).
Fig. 7. *Nassa versicolor* var. *striatula* Adams. Lectotype MCZ 186374 (3.8x).
Fig. 8. *Nassa versicolor* Adams. Lectotype MCZ 177145 (3.8x).
Fig. 9. *Purpura foveolata* Adams. Lectotype MCZ 186391 (6.2x).
Fig. 10. *Columbella pulchrior* Adams. Lectotype MCZ 186384 (11.2x).

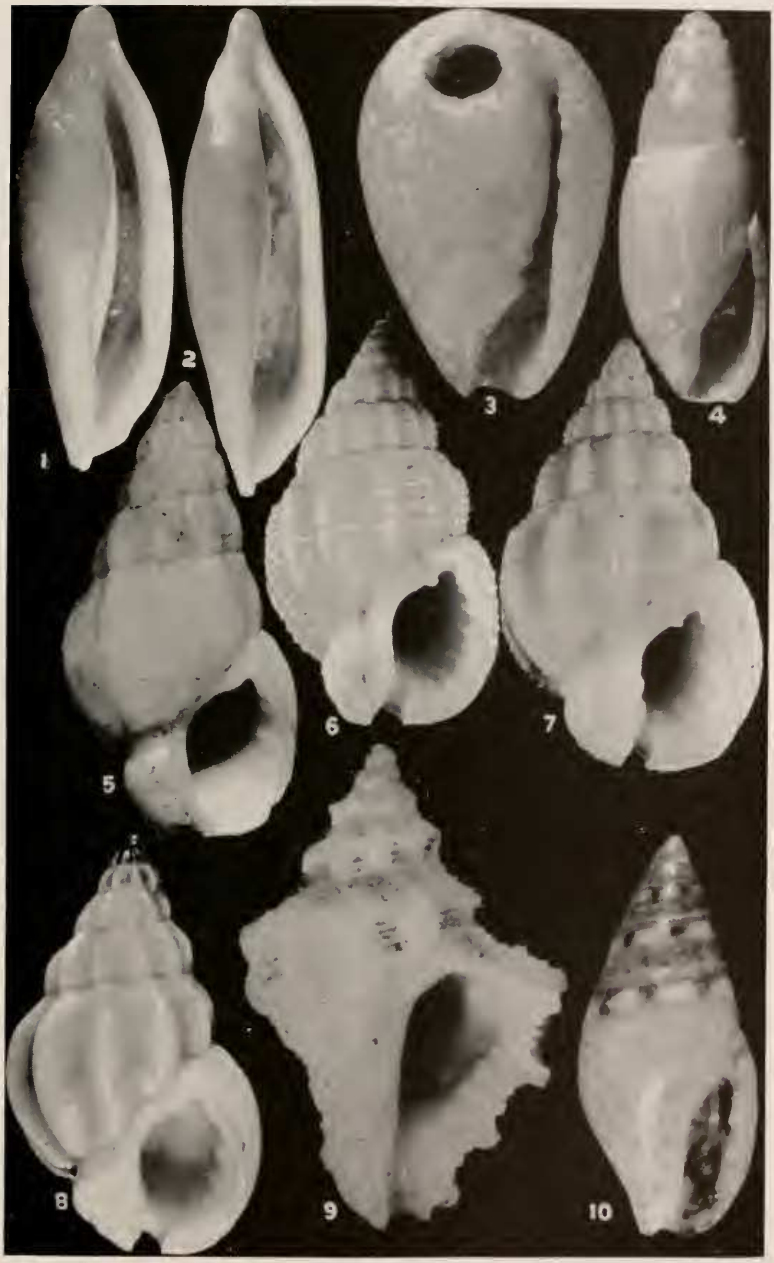

Plate 6

Plate 7

Fig. 1. *Buccinum stimpsonianum* Adams. Lectotype MCZ 186378 (3.8x).
Fig. 2. *Columbella diminuta* Adams. Lectotype MCZ 186401 (16x).
Fig. 3. *Columbella conspicua* Adams. Holotype MCZ 186390 (12.4x).
Fig. 4. *Columbella tesselata* Adams. Lectotype MCZ 186376 (9.5x).
Fig. 5. *Columbella gracilis* Adams. Lectotype MCZ 186393 (6.5x).
Fig. 6. *Columbella moesta* Adams. Lectotype MCZ 186382 (6.9x).
Fig. 7. *Pleurotoma gemmulosa* Adams. Holotype MCZ 186399 (7.8x).
Fig. 8. *Ricinula jugosa* Adams. Holotype MCZ 186394 (2x).
Fig. 9. *Pleurotoma grandimaculata* Adams. Holotype MCZ 186400 (3.1x).
Fig. 10. *Pleurotoma atrior* Adams. Holotype MCZ 186396 (3.5x).

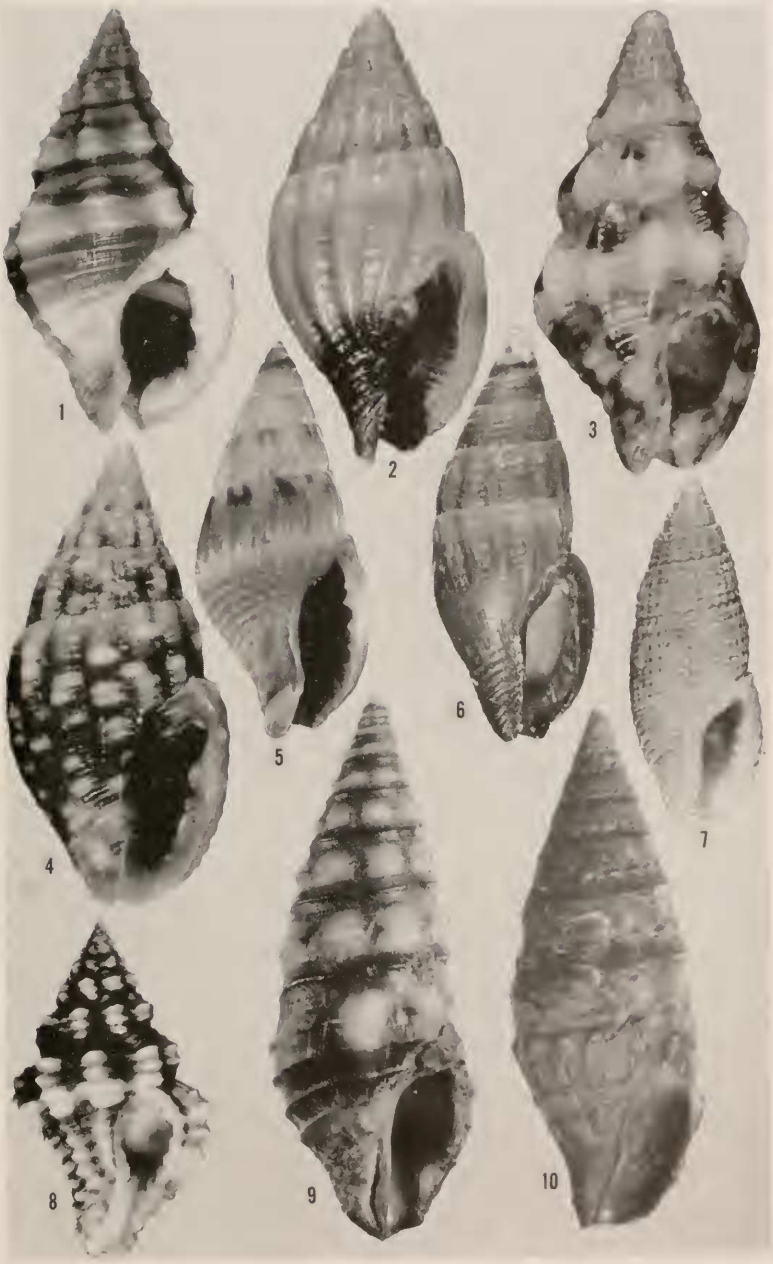

Plate 7

Plate 8

Fig. 1. *Triton fusoides* Adams. Holotype MCZ 186395 (3.3x).
Fig. 2. *Fusus bellus* Adams. Holotype MCZ 177176 (5.1x).
Fig. 3. *Cancellaria affinis* Adams. Lectotype MCZ 186403 (1.8x).
Fig. 4. *Mangelia neglecta* Adams. Lectotype MCZ 186406 (8.3x).
Fig. 5. *Cancellaria pygmaea* Adams. Holotype MCZ 186415 (5.8x).
Fig. 6. *Pleurotoma exigua* Adams. Holotype MCZ 186398 (8.4x).
Fig. 7. *Pleurotoma striosa* Adams. Lectotype MCZ 186426 (8.4x).
Fig. 8. *Pleurotoma concinna* Adams. Holotype MCZ 186397 (6.9x).
Fig. 9. *Cerithium pauperculum* Adams. Lectotype MCZ 186460 (16.9x).
Fig. 10. *Chemnitzia acuminata* Adams. Holotype MCZ 186420 (19.8x).
Fig. 11. *Chemnitzia aculeus* Adams. Lectotype 186435 (13.5x).
Fig. 12. *Chemnitzia affinis* Adams. Lectotype MCZ 186446 (11.7x).
Fig. 13. *Chemnitzia turrita* Adams. Lectotype MCZ 186433 (12.2x).

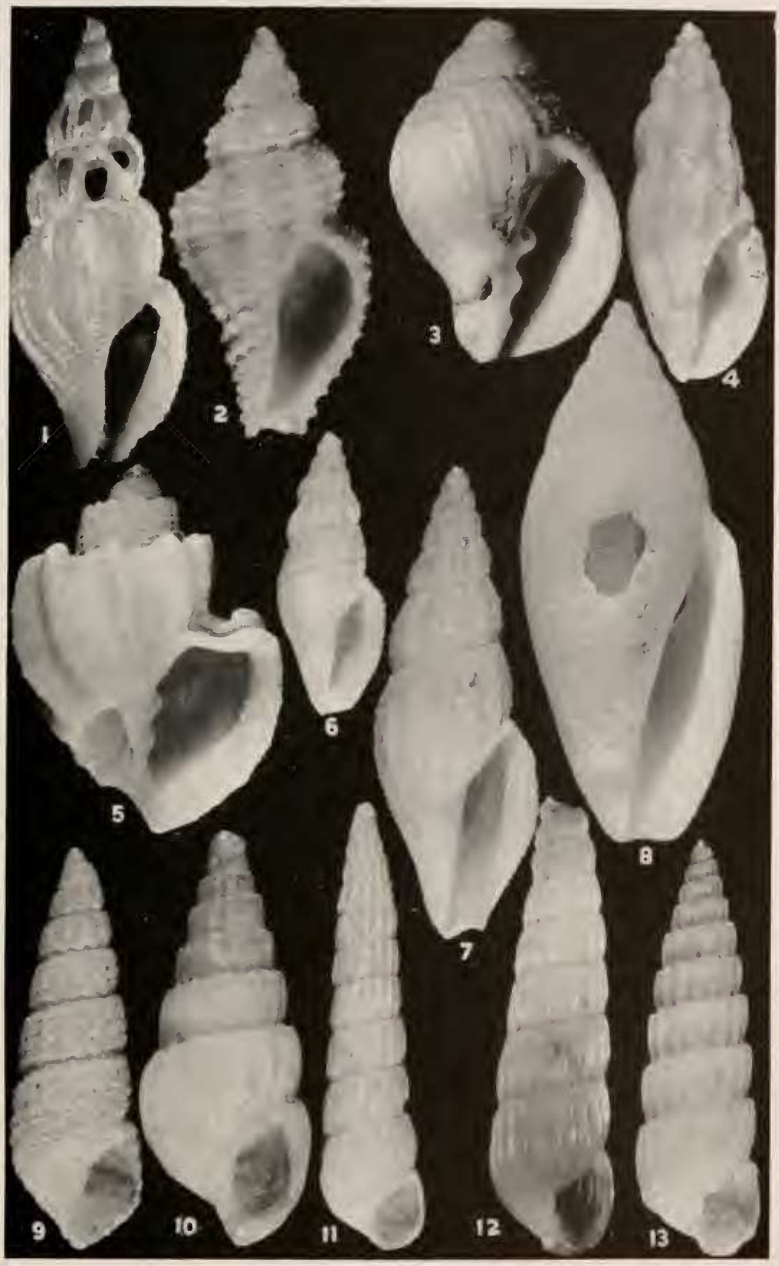

Plate 8

Plate 9

Fig. 1. *Cerithium assimilatum* Adams. Lectotype MCZ 186405 (11.6x).
Fig. 2. *Cerithium bimarginatum* Adams. Lectotype MCZ 186428 (12.4x).
Fig. 3. *Cerithium famelicum* Adams. Lectotype MCZ 186409 (1.9x).
Fig. 4. *Cingula paupercula* Adams. Lectotype MCZ 186341 (19.5x).
Fig. 5. *Littorina atrata* Adams. Lectotype 186444 (10.7x).
Fig. 6. *Littorina foveata* Adams. Lectotype MCZ 186454 (7.3x).
Fig. 7. *Adeorbis* (?) *abjecta* Adams. Lectotype MCZ 186338 (11.2x).
Fig. 8. *Rissoa inconspicua* Adams. Holotype MCZ 186416 (24.5x).
Fig. 9. *Cerithium neglectum* Adams. Lectotype MCZ 186413 (21.4x).
Fig. 10. *Triphoris inconspicuus* Adams. Lectotype MCZ 186552 (17.1x).
Fig. 11. *Triphoris infrequens* Adams. Lectotype MCZ 186459 (19.4x).
Fig. 12. *Cingula inconspicua* Adams. Lectotype MCZ 186456 (22x).
Fig. 13. *Triphoris alternatus* Adams. Lectotype MCZ 186449 (13.5x).

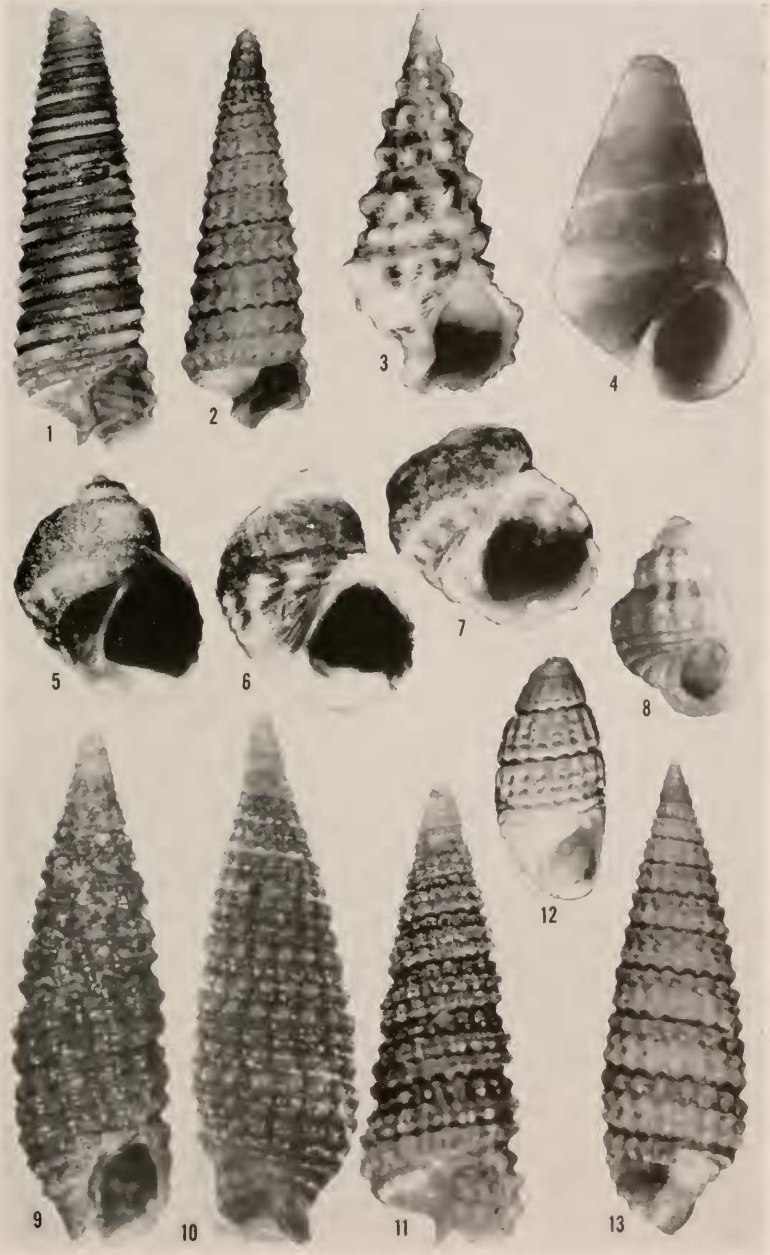

Plate 9

Plate 10

Fig. 1. *Chemnitzia major* Adams. Holotype MCZ 186448 (7.1x).
Fig. 2. *Chemnitzia gracilior* Adams. Lectotype MCZ 186447 (10x).
Fig. 3. *Chemnitzia marginata* Adams. Lectotype MCZ 186450 (20.3x).
Fig. 4. *Chemnitzia panamensis* Adams. Lectotype MCZ 186431 (10.4x).
Fig. 5. *Chemnitzia communis* Adams. Lectotype MCZ 155966 (20.2x).
Fig. 6. *Pedipes angulata* Adams. Lectotype MCZ 177345 (5.4x).
Fig. 7. *Litiopa* (?) *saxicola* Adams. Lectotype MCZ 186348 (16.1x).
Fig. 8. *Cingula terebellum* Adams. Holotype MCZ 186312 (23.1x).
Fig. 9. *Chemnitzia similis* Adams. Holotype MCZ 186555 (11.2x).
Fig. 10. *Rissoa firmata* Adams. Holotype MCZ 186430 (12.2x).
Fig. 11. *Rissoa fortis* Adams. Lectotype MCZ 186425 (8.1x).
Fig. 12. *Pyramidella conica* Adams. Lectotype MCZ 186346 (4.8x).

Plate 10

Plate 11

Fig. 1. *Cerithium pulchrum* Adams. Lectotype MCZ 186274 (1.6x).
Fig. 2. *Cerithium reevianum* Adams. Lectotype MCZ 186276 (1.5x).
Fig. 3. *Cerithium validum* Adams. Lectotype MCZ 186279 (1.4x).
Fig. 4. *Chemnitzia striosa* Adams. Holotype MCZ 186421 (12.6x).
Fig. 5. *Chemnitzia clathratula* Adams. Lectotype MCZ 186437 (22.1x).
Fig. 6. *Littorina megasoma* Adams. Holotype MCZ 186419 (20x).
Fig. 7. *Fissurella alta* Adams. Lectotype MCZ 186344;
Fig. 8. " " " Paratype MCZ 186345 (both 2.4x).
Fig. 9. *Crepidula rostrata* Adams. Lectotype MCZ 186295;
Fig. 10. " " " Paratype MCZ 186296 (both 3.2x).
Fig. 11. *Bulla* (*Cylichna*) *luticola* Adams. Lectotype MCZ 186411 (10x).
Fig. 12. *Crepidula nivea* Adams. Lectotype MCZ 186291;
Fig. 13. " " " Paratype MCZ 186292 (both natural size).
Fig. 14. *Crepidula cerithicola* Adams. Lectotype MCZ 186293;
Fig. 15. " " " Paratype MCZ 186294 (both 5.3x).

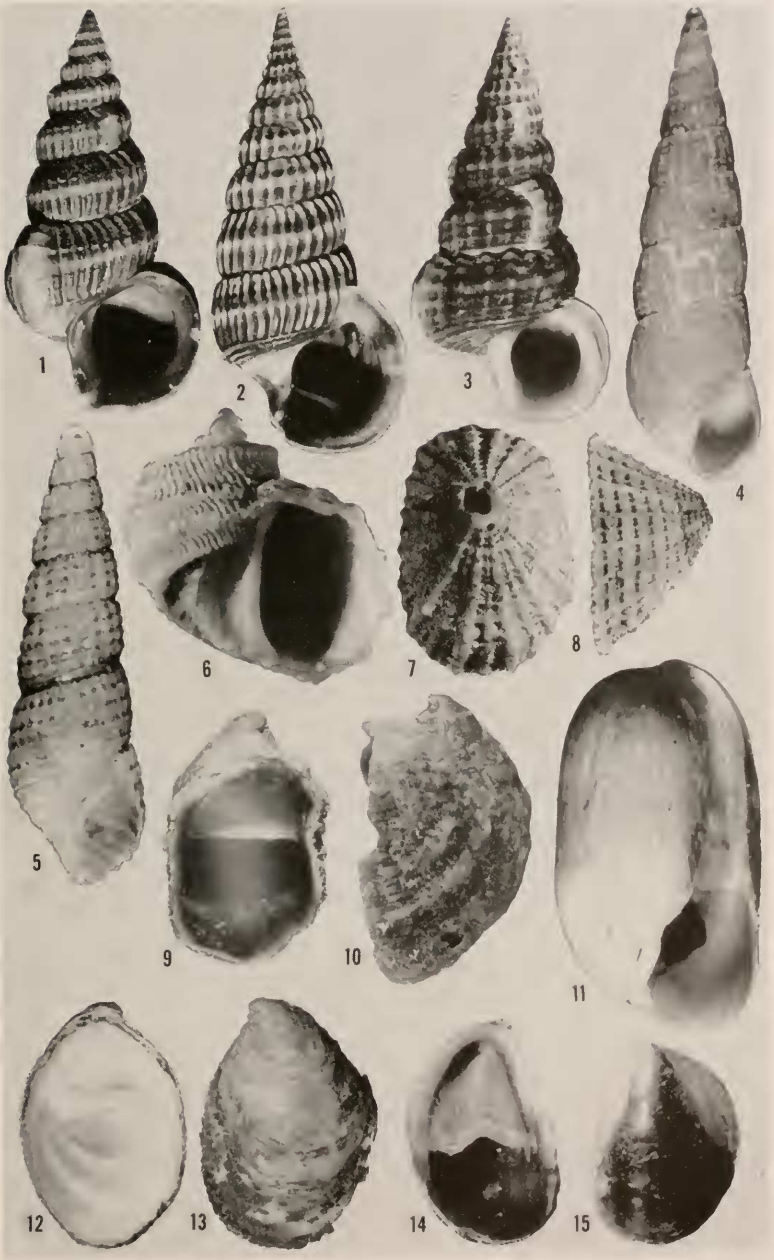

Plate 11

Plate 12

Fig. 1. *Rissoa janus* Adams. Lectotype MCZ 186458 (12.5x).
Fig. 2. *Rissoa infrequens* Adams. Holotype MCZ 186418 (10.6x).
Fig. 3. *Rissoa scalariformis* Adams. Holotype MCZ 186423 (19.1x).
Fig. 4. *Bulla* (*Tornatina*) *infrequens* Adams. Lectotype MCZ 186451 (8.7x).
Fig. 5. *Auricula infrequens* Adams. Lectotype MCZ 186347 (6.2x).
Fig. 6. *Rissoa clandestina* Adams. Lectotype MCZ 186440 (14.6x).
Fig. 7. *Truncatella bairdiana* Adams. Lectotype MCZ 177110 (8.4x).
Fig. 8. *Truncatella* (?) *dubiosa* Adams. Lectotype MCZ 186571 (16.6x).
Fig. 9. *Calyptraea aspersa* Adams. Paratype MCZ 186331;
Fig. 10. " " " Lectotype MCZ 186330 (both 2.2x).
Fig. 11. *Calyptraea* (*Syphopatella*) *regularis* Adams. Paratype MCZ 186324);
Fig. 12. " " " " Lectotype MCZ 186323 (both about 4/5 natural size).
Fig. 13. *Stomatella inflata* Adams. Holotype MCZ 186340 (4.1x).

Plate 12

Plate 13

Fig. 1. *Littorina angiostoma* Adams. Lectotype MCZ 186442 (15x).
Fig. 2. *Littorina excavata* Adams. Holotype MCZ 186422 (9.5x).
Fig. 3. *Calyptraca aberrans* Adams. Holotype MCZ 186322 (2.5x).
Fig. 4. *Auricula concinna* Adams. Lectotype MCZ 186332 (5.2x).
Fig. 5. *Auricula panamensis* Adams. Lectotype MCZ 186334 (4.9x).
Fig. 6. *Auricula tabogensis* Adams. Lectotype MCZ 186273 (3.4x).
Fig. 7. *Auricula trilineata* Adams. Holotype MCZ 186562 (2.3x).
Fig. 8. *Trochus coronulatus* Adams. Lectotype MCZ 186328 (2.1x).
Fig. 9. *Trochus leanus* Adams. Lectotype MCZ 186336 (3.1x).
Fig. 10. *Turbo rutilus* Adams. Holotype MCZ 177273 (about 1/2 natural size).
Figs. 11–12. *Calyptraca planulata* Adams. Holotype MCZ 186321 (4x).
Fig. 13. *Littorina dubiosa* Adams. Lectotype MCZ 186573 (9.8x).

Plate 13

Plate 14

Fig. 1, a–b. *Vitrinella minuta* Adams. Lectotype MCZ 156260 (31.6x).
Fig. 2. *Vitrinella minuta* Adams, base of a small specimen (35.5x).
Fig. 3, a–b. *Vitrinella parva* Adams. Lectotype MCZ 156268 (26.6x).
Fig. 4, a–b. *Vitrinella perparva* Adams. Lectotype MCZ 156261 (29.5x).
Fig. 5, a–b. *Vitrinella panamensis* Adams. Lectotype MCZ 156266 (24.6x).
Figs. 6, 6a. *Vitrinella panamensis,* variety.

We are indebted to Dr. H. A. Pilsbry for the loan of this plate as well as plates 15 and 16. They appeared originally in the Proceedings Academy Natural Sciences, Philadelphia **92**, plates 26, 27 and 28, December 27, 1945.

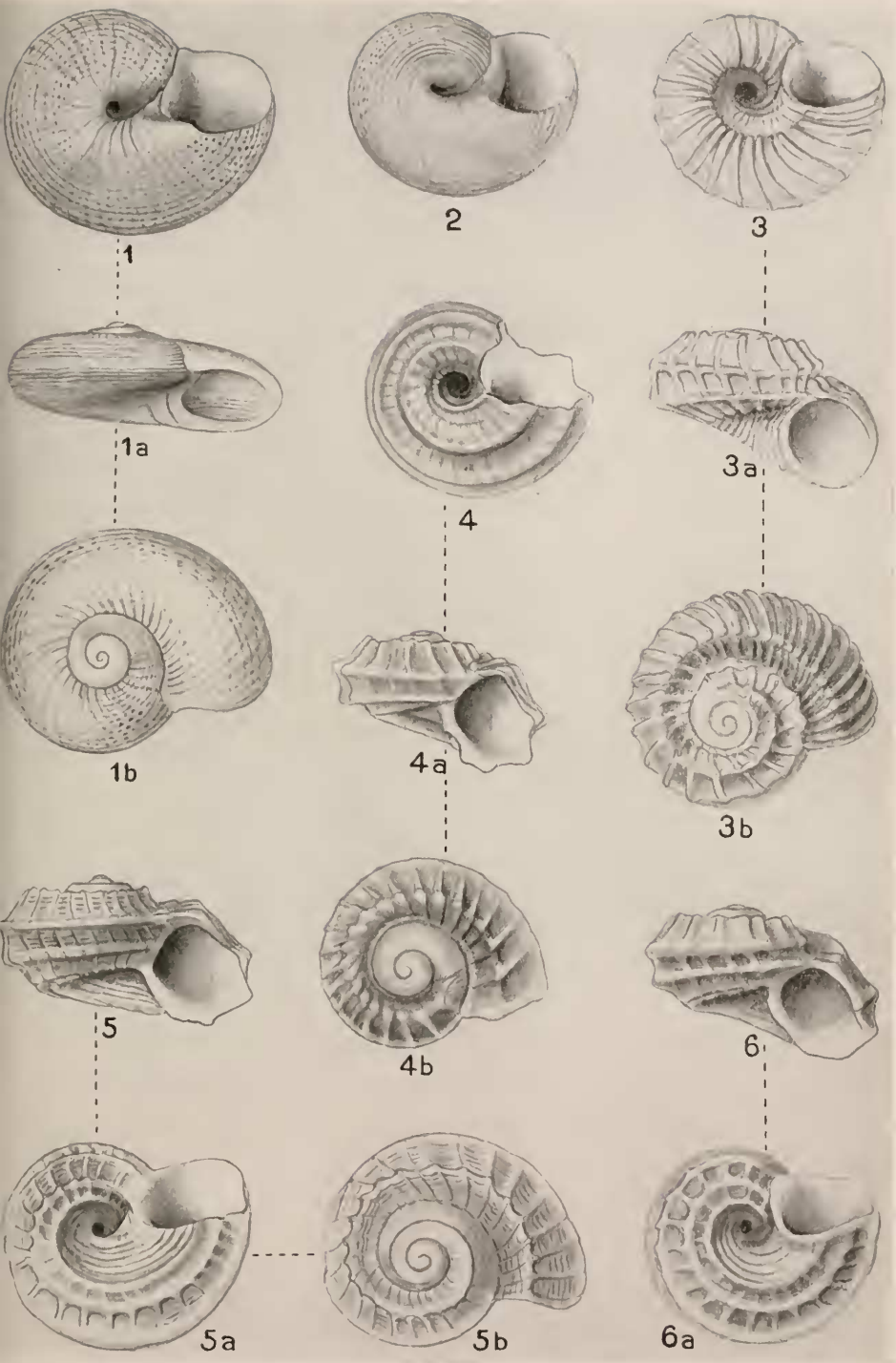

Plate 14

Plate 15

Fig. 1, a–b. *Vitrinella valvatoides* Adams. Lectotype MCZ 156273 (14.6x).
Fig. 2, a–b. *Vitrinella exigua* Adams. Lectotype MCZ 156265 (24.3x).
Fig. 3, a–b. *Vitrinella seminuda* Adams. Lectotype MCZ 156258 (22.6x).
Fig. 4, a–b. *Vitrinella concinna* Adams. Holotype MCZ 156264 (26x).
Fig. 5, a–b. *Vitrinella janus* Adams. Holotype MCZ 156267 (22.5x).

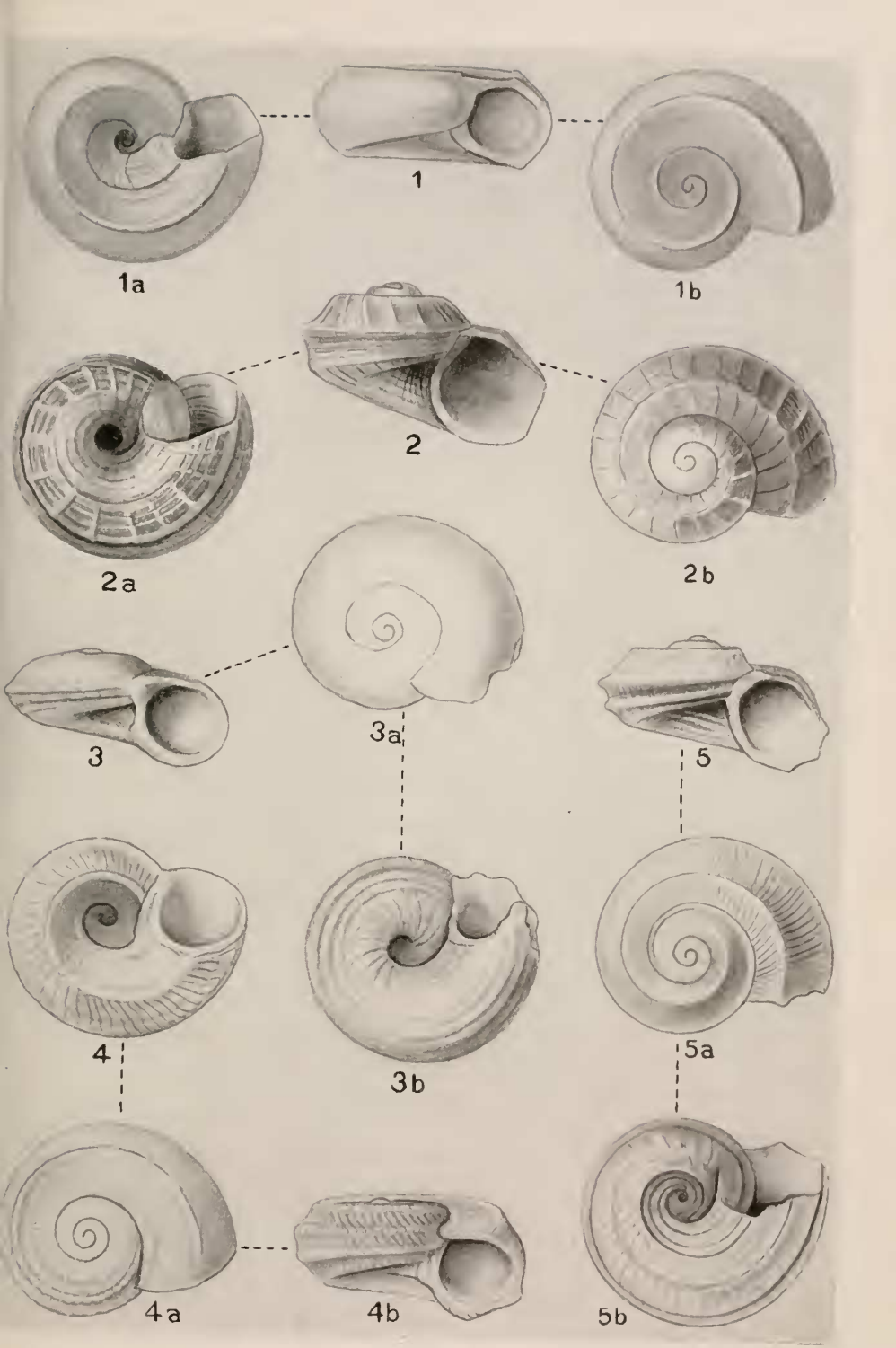

Plate 15

Plate 16

Fig. 1, a–b. *Vitrinella modesta* Adams. Holotype MCZ 156259 (20.8x).
Fig. 2, a–b. *Vitrinella regularis* Adams. Lectotype MCZ 156274 (21.2x).
Fig. 3, a–b. *Vitrinella tricarinata* Adams. Lectotype MCZ 156263 (20.5x).
Fig. 4, a–b. *Crepidula osculans* Adams. Lectotype MCZ 156277 (scale line equals 1 mm.).
Figs. 5–8. *Turbo phasianella* Adams. Fig. 5, Lectotype MCZ 186236; Figs. 6–8, Paratypes (11.4x).

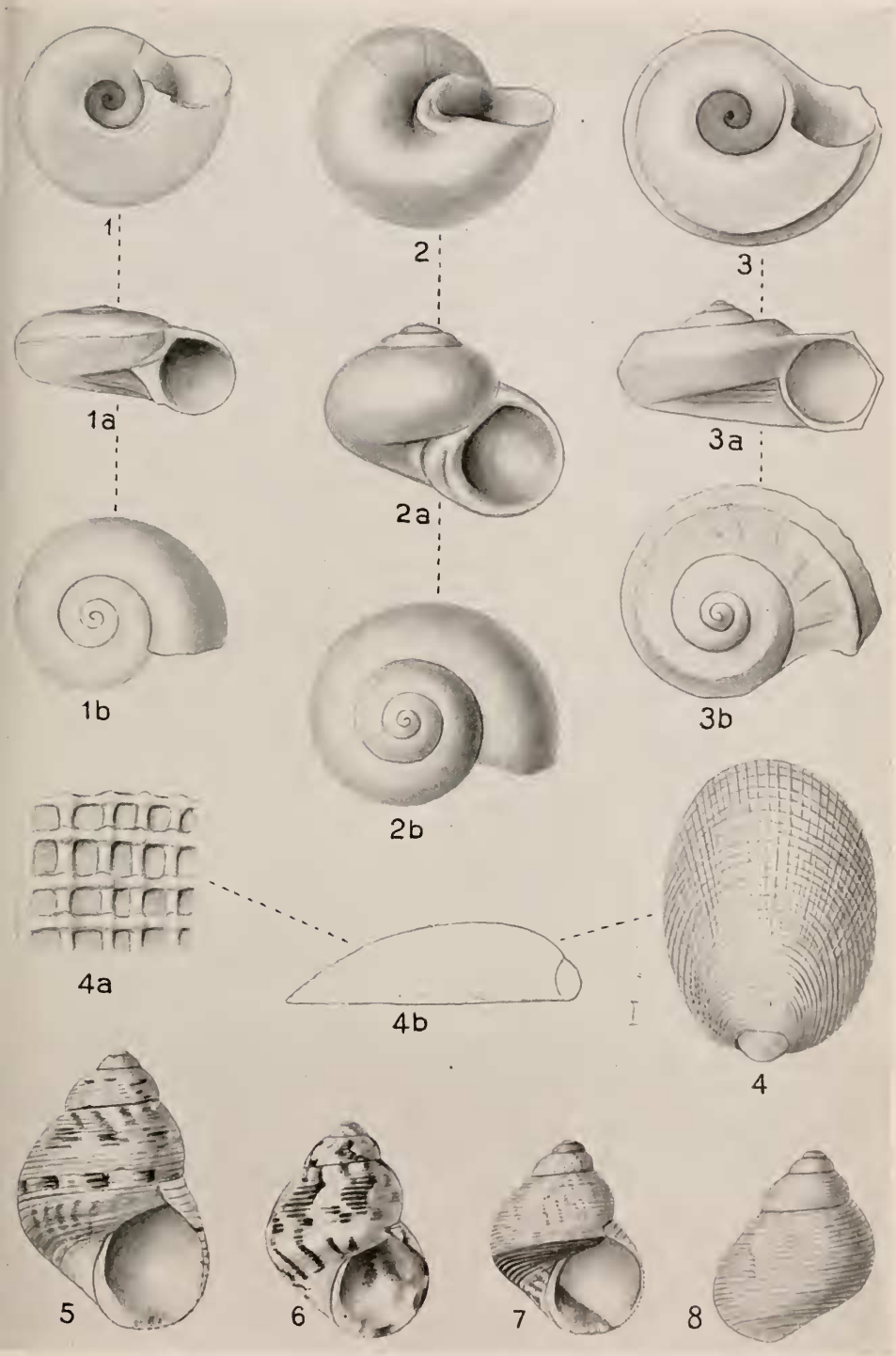

Plate 16

Plate 17

Fig. 1. *Coecum pygmaeum* Adams. Holotype MCZ 186587 (33.3x).
Fig. 2. *Coecum monstrosum* Adams. Lectotype MCZ 186584 (24.3x).
Fig. 3. *Coecum eburneum* Adams. Lectotype MCZ 186575 (24.3x).
Fig. 4. *Coecum laqueatum* Adams. Holotype MCZ 186583 (24x).
Fig. 5. *Coecum laeve* Adams. Holotype MCZ 186581 (30.5x).
Fig. 6. *Coecum firmatum* Adams. Lectotype MCZ 186578 (21x).
Fig. 7. *Coecum diminutum* Adams. Holotype MCZ 186574 (30.5x).
Figs. 8–9. *Corbula rubra* Adams. Holotype MCZ 186313 (3.6x).
Figs. 10–11. *Amphidesma tortuosum* Adams. Holotype MCZ 186366 (about 9/10 natural size).
Figs. 12–13. *Potamomya inflata* Adams. Lectotype MCZ 186315 (1.7x).
Figs. 14–15. *Pandora cornuta* Adams. Holotype MCZ 186309 (1.9x).

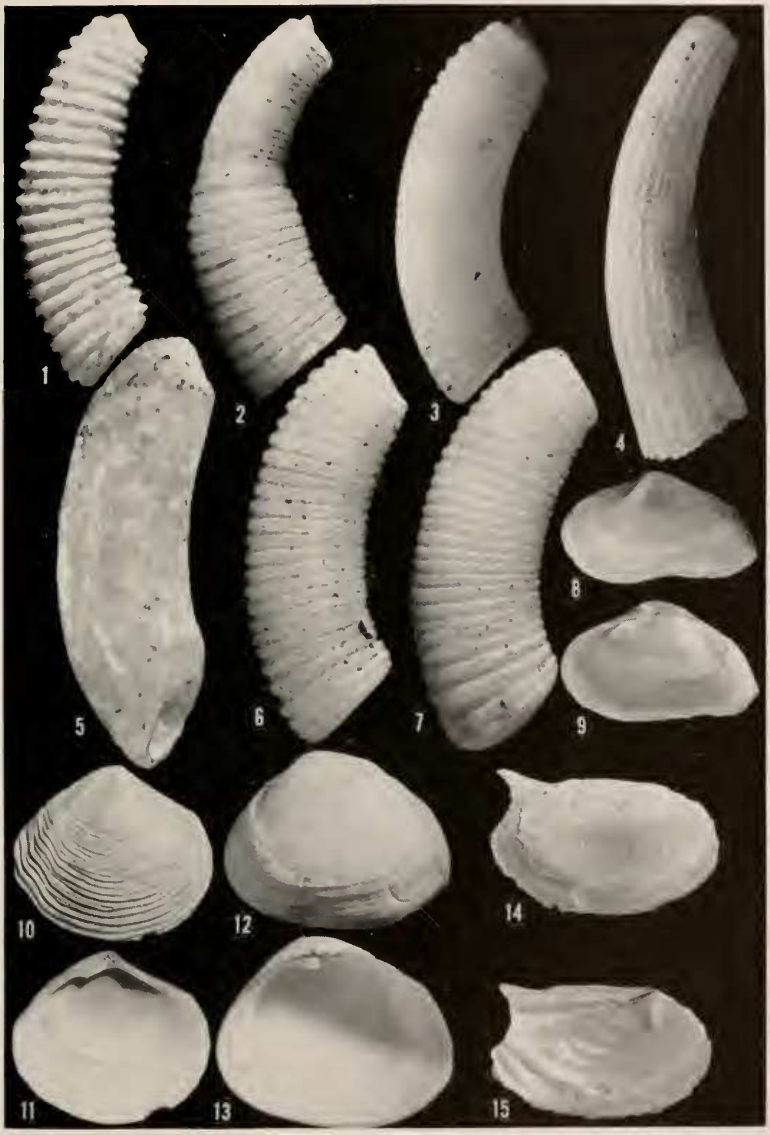

Plate 17

Plate 18

Figs. 1–2. *Amphidesma striosum* Adams. Holotype MCZ 186542 (1.6x).
Figs. 3–4. *Potamomya triagonalis* Adams. Lectotype MCZ 186314 (1.1x).
Figs. 5–6. *Tellina simulans* Adams. Holotype MCZ 186307. Fig. 5 (1.5x), Fig. 6 (1.3x).
Figs. 7–8. *Amphidesma bicolor* Adams. Holotype MCZ 186504 (1.6x).
Figs. 9–10. *Tellina cognata* Adams. Holotype 186304. Fig. 9 (about 2/3 natural size), Fig. 10 (about 3/4 natural size).
Figs. 11–12. *Tellina vicina* Adams. Lectotype MCZ 186365 (1.3x).
Fig. 13. *Anomia tenuis* Adams. Lectotype MCZ 186137 (1.5x).
Figs. 14–15. *Amphidesma proximum* Adams. Lectotype MCZ 186563 (about 1/2 natural size).
Figs. 16–17. *Tellina concinna* Adams. Lectotype MCZ 186302 (about 3/4 natural size).

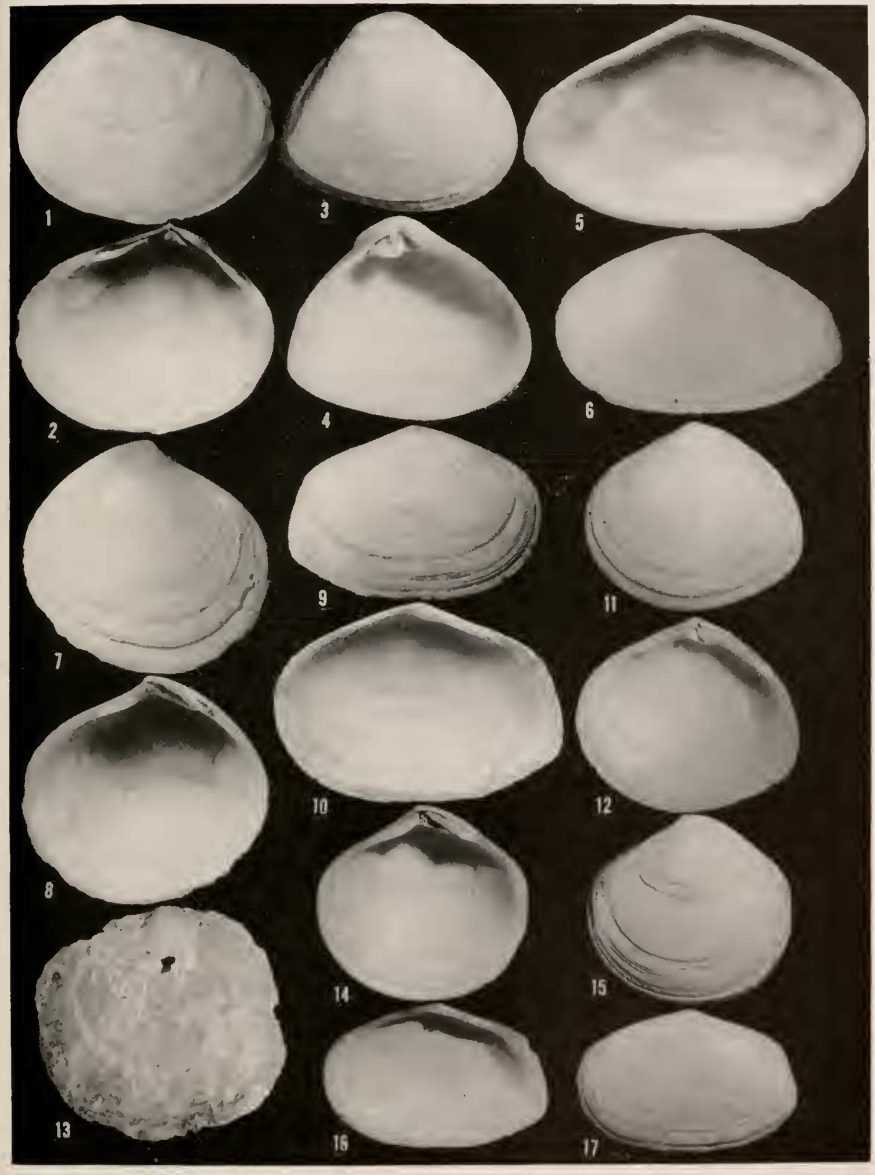

Plate 18

Plate 19

Figs. 1–2. *Solen rudis* Adams. Lectotype MCZ 186271 (about 1/2 natural size).
Figs. 3–4. *Petricola cognata* Adams. Holotype MCZ 186308. Fig. 3 (1.6x), Fig. 4 (1.8x).
Figs. 5–6. *Potamomya aequalis* Adams. Holotype MCZ 186325 (1.5x).
Figs. 7–8. *Arca* (*Byssoarca*) *tabogensis* Adams. Lectotype MCZ 186299 (1.1x).
Figs. 9–10. *Amphidesma ventricosum* Adams. Holotype MCZ 186364. Fig. 9 (1.5x), Fig. 10 (1.8x).
Figs. 11–12. *Arca pholadiformis* Adams. Lectotype MCZ 186368 (1.3x).
Fig. 13. *Tellina puella* Adams. Lectotype MCZ 186305 (1.6x).
Fig. 14. *Tellina puella* Adams. Paratype MCZ 186306 (1.6x).
Figs. 15–16. *Tellina siliqua* Adams. Holotype MCZ 186301 (1.6x).
Figs. 17–18. *Solecurtus affinis* Adams. Lectotype MCZ 186558 (about 2/3 natural size).
Figs. 19–20. *Anatina alta* Adams. Holotype MCZ 186363. Fig. 19 (about 7/8 natural size), Fig. 20 (about 3/5 natural size).

Plate 19

Plate 20

Figs. 1–2. *Arca similis* Adams. Lectotype MCZ 186564 (about 3/4 natural size).
Figs. 3–4. *Gouldia pacifica* Adams. Lectotype MCZ 186297 (7.9x).
Figs. 5–6. *Cyrena maritima* Adams. Lectotype MCZ 186284 (about 2/3 natural size).
Figs. 7–8. *Chama buddiana* Adams. Lectotype MCZ 190150 (about 9/10 natural size).
Fig. 9. *Cingula turrita* Adams. Type lost. Figure of type from Dall and Bartsch 1909, pl. 18, fig. 12 (14x).

Plate 20

Plate 21

Fig. 1. *Mitra exigua* Adams. Lectotype MCZ 186593 (16.5x).
Fig. 2. *Scalaria ligata* Adams. Lectotype MCZ 186590 (12.8x).
Fig. 3. *Litiopa effusa* Adams. Lectotype MCZ 186589 (16.6x).
Fig. 4. *Phasianella brevis* Adams. Neotype MCZ 186592 (17.9x).
Fig. 5. *Buccinum candidissimum* Adams. Holotype MCZ 186591 (6.8x).

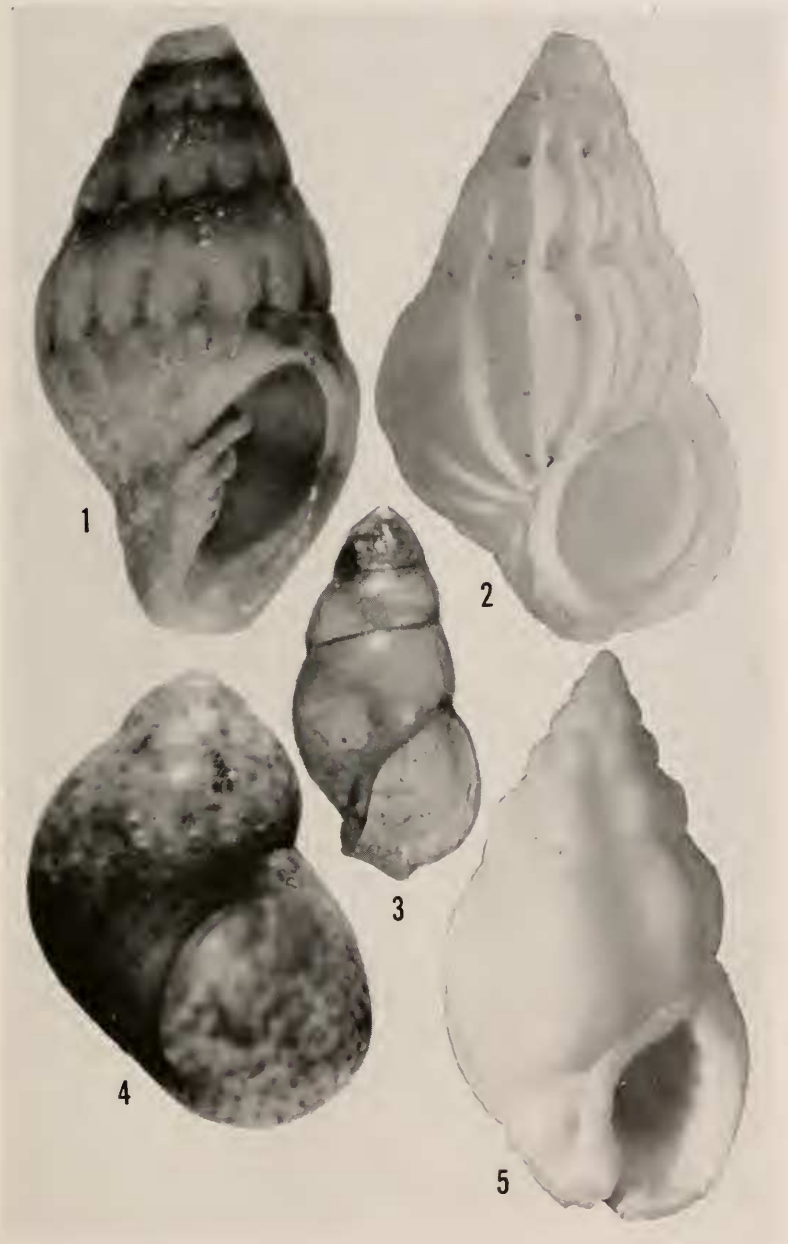

Plate 21

Additions to the Western Atlantic Marine Mollusks Described by C. B. Adams

By RUTH D. TURNER

Since the publication of our paper on the Western Atlantic Marine Mollusks described by C. B. Adams, type specimens of six species which were then reported as lost have been located. Of these, five are figured for the first time, the sixth specimen is so badly broken it is not worthy of photographing.

brevis *Adams* **Phasianella** Plate 21, fig. 4

1850, Adams, Contributions to Conchology no. 4, p. 67.

1950, Clench and Turner, Occ. Pap. On Mollusks **1**, no. 15, p. 262.

[A neotype is here selected for this species. The specimen was in the Adams Collection but was collected by T. Bland in St. Thomas.]

candidissimum *Adams* **Buccinum** Plate 21, fig. 5

1845, Adams, Proc. Boston Soc. Nat. Hist. **2**, p. 2.

1950, Clench and Turner, Occ. Pap. On Mollusks **1**, no. 15, p. 264.

effusa *Adams* **Litiopa** Plate 21, fig. 3

1850, Adams, Contributions to Conchology no. 5, p. 71.

1950, Clench and Turner, Occ. Pap. On Mollusks **1**, no. 15, p. 276.

[Is the embryonic shell of a *Cymatium,* probably *Cymatium martinianum* d'Orbigny.]

exigua *Adams* **Mitra** Plate 21, fig. 1

1845, Adams, Proc. Boston Soc. Nat. Hist. **2**, p. 2.

1950, Clench and Turner, Occ. Pap. On Mollusks **1**, no. 15, p. 278.

ligata *Adams* **Scalaria** Plate 21, fig. 2

1850, Adams, Contributions to Conchology no. 4, p. 67.

1950, Clench and Turner, Occ. Pap. On Mollusks **1**, no. 15, p. 204.

[Is *Epitonium albidum* d'Orbigny; Clench and Turner 1951, Johnsonia **2**, no. 30, p. 260.

obesa *Adams* **Litiopa** Holotype MCZ 186594

1850, Adams, Contributions to Conchology no. 5, p. 71.

1950, Clench and Turner, Occ. Pap. On Mollusks **1**, no. 15, p. 319.

[Is the embryonic shell of a *Cymatium,* probably *Cymatium muricinum* Röding.]